

The Iron Age

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METALLURGICAL NOTES.

Magnetic Ore Dressing.

According to a paper read by Herr O. Heberle, at a meeting of German engineers of the Central Rhenisch district, says *Engineering*, a large amount of ore is treated by magnetic dressing and separating at the Friedrichsegen Mine. The ore in question is a mixture of zinc blende and spathic iron ore, the two minerals being so nearly of the same specific gravity that their separation by usual methods cannot be carried out, so that for the past three years recourse has been had to the magnetic process. The material to be treated comes partly as hand-picked lumps and partly as a product of hydraulic dressing of the ores from the mine. The hand-picked portion is in pieces from 40 mm. to 120 mm. (1.6 inches to 5 inches) diameter, while that from the hydraulic dressing is in bits of 6 mm. (.24 inch) diameter and less. The treatment of this material comes under three heads: 1, the calcination of the ore; 2, the electro-magnetic separation; and 3, the further hydraulic treatment of a portion of the material so separated. The calcination of the ore is intended to convert the carbonate of iron of the spathic ore into the magnetic oxide, which can be acted upon by the magnets. The lump ore is calcined in tall kilns mixed with small coke. Owing to the sulphur contained in the ore, the fuel required is very little, only about 50 kg. of coke per 5 tons ore, which is the daily charge for one kiln worked by two men. This calcination costs only about 80 pfennigs (about 13 cents) per ton ore. The calcined ore is crushed by stone breakers and rolls to a size of 5 mm. diameter. The small ore is calcined in long horizontal furnaces. This is much dearer and costs 2½ marks (58½ cents) per ton ore. All the calcined ore, after cooling, passes to the magnetic apparatus through a classifying sieve, which separates out all above the diameter of 4 mm., delivering it back for further crushing, while all of less size than 4 mm. passes down shoots to the magnets. The magnetic plant consists of 16 separate groups of magnets, each four forming one apparatus, in two pairs, one above the other. The upper pair receive the ore as it comes from the classifying sieve and separate it, though not completely, into blende and iron ore. The products of this separation are passed on, each by itself, to one of the lower pair of magnets. The final result of this is blende with quartz, iron ore, and a middle product of both kinds. This middle product is returned to the apparatus for further treatment. The whole of the magnetic apparatus is connected with a powerful exhaust, as very much dust is formed during the treatment of the ore. The arrangement of the magnet is as follows: Each separator has four magnets attached to the fixed axis of a revolving brass drum, so that the drum revolves round the outside of the magnets, which remain always in the same position, close to one side of the drum. The ore is fed automatically down an inclined plane, so as to come in contact with the outside of the drum at the point where the magnets are fixed on the inside. The magnetic oxide of iron becomes at once attracted by the magnets and sticks to the drum, which, revolving in a contrary direction to the downward ore feed, carries the oxide upward till it gets beyond the attraction of the magnets and is thrown down on the other side, while the blende, not being attracted, falls at once to the ground under the feed point. A Gramme dynamo of 1 horse-power supplies enough current for a group of four such drums. The special advantage claimed for this arrangement is that the magnets are protected from all wear and tear and from dust, heat, &c.; also that there is no necessity for interruption of current, nor for any arrangement for scraping the attracted ore from the magnets, as with other apparatus in use in which the magnets are not surrounded by a drum. With two such groups of four separators, 24 tons of calcined ore can be treated in 12 hours, giving 7 to 8 tons blende and 16 to 18 tons iron ore. The iron ore is not further treated, but the separated blende is subjected to hydraulic dressing, by which it is concentrated and also some lead ore is taken out of it.

Method to Determine the Specific Gravity of Coke.

Dr. W. Thörner gives an account in *Stahl und Eisen* of a rapid and simple method he has adopted for determining the specific gravity of coke, and also the relative volumes of coke substance and pore spaces in any given sample. No novelty is claimed for the principles involved in the method, which is, however, recommended as very rapid and easy, and, when proper care is taken, quite satisfactory as to accuracy. A fair average sample of the coke is carefully taken, and then of this sample two separate portions are prepared, one being reduced to fine powder and the other being taken in small pieces of about 10 mm. (¾ inch) diameter. The powder may be called No. 1 and the small pieces No. 2. Equal weights—say, 25 to 50 gram. of each portion—are then weighed off, and that from No. 2 is placed in a beaker and covered over with alcohol, benzole or other suitable fluid, the object of which is to completely moisten and permeate the coke as speedily as possible. Alcohol, though not as rapid in its action as

benzole or one or two other fluids, is finally recommended as quite efficient, and cheaper and pleasanter to work with. The beaker is placed on a water bath, and the alcohol made to boil for a few minutes, after which the beaker is placed aside to cool down to 15°. By this treatment the coke is completely moistened, and all its pore spaces are filled up by the alcohol. The apparatus which is used for measuring volumes consists of a small flask of a capacity of 100 c. cm., rather tall and narrow, and of not too thin glass, the neck of which is continued in a glass tube of 12 to 13 mm. bore, long enough to contain 100 c. cm., and graduated from the bottom upward in centimeters and tenths of centimeters. This apparatus is filled with alcohol

it displaced 13.9 c. cm. of the fluid, we should have $\frac{25.0}{13.9} = 1.80$ specific gravity of coke

substance. The sample of coke in small pieces, No. 2, is now removed from the beaker in which it has been covered with fluid, on to a funnel, allowed to drain for a few seconds till all excess of fluid is removed, and is then carefully transferred to the apparatus. If too large a quantity of coke powder was used in the first determination, then the flask and tube must be cleaned out and newly filled with fluid, as at first; but if too much was used, there will be room for the second measurement without so refilling. In either case the displacement caused by sam-

The Oxidation of Copper.

Copper heated with free access of air, says a foreign exchange, is generally transformed into cupric oxide without passing through the cuprous stage. This reaction occurs at all temperatures between 350°, and that at which the dissociation tension of the oxide formed reaches about the fifth part of the pressure of the atmosphere—i. e., the pressure of the oxygen contained in the air. Above this temperature the black oxide formed at first is partially decomposed. About the melting point of gold, the mixture of cupric and cuprous oxide fuses. The decomposition ceases when the decreasing tension of the oxygen, liberated from the mixture, reaches that of one-fifth of an atmosphere. It is evident that the direct

less during the present year than during the year 1883. The builders, however, believe that the prospects for the future are brighter than at any previous time for several months. The dullness in the marine carrying trade has had, they say, one effect that operates to the benefit of the builders. The scantiness of ocean freights has led to keen competition and to a cutting down of rates to such a point that it no longer pays to run any but modern-built ships, which can make their trips in the shortest possible time. The market for such ships is not overstocked, owing to the limited production during the past year, and the demand for them is increasing. The shipping merchants have perceived that the old-time steamers, though cheaper in their original cost, are more costly in use, owing to their larger expense in maintenance, repairs, sailors' wages and coal. Some large firms in London and Liverpool have condemned whole fleets of these vessels, and are selling them at a loss to coastwise traders. These firms and several transportation companies have given orders for the construction of larger and stronger vessels, with modern appliances in machinery and steering gear. The building of these steamers during the next few months gives a prospect of employment to thousands of skilled workmen who are now idle.

Iron in Modern Architecture.

It is mainly in city buildings of a business character—buildings which have succeeded demolished structures not suited to present requirements—that the resources of iron for architectural purposes are best illustrated. While iron enters largely into the purely constructive features of these loftier and more substantial erections, it is also made contributory to decorative treatment. None can fail to note the extreme transition that has been experienced from the early structures into which iron entered architecturally, many of them having no higher character than might belong to a bonded warehouse, an iron foundry or an engine factory, to modern buildings, which, despite the use of a material that has sometimes been despised, are both imposing and beautiful. In the structures into which iron now enters as a facing we witness, ordinarily, carefully-designed construction, with judicious decoration, conforming to some pronounced style, this style concurring to some extent with other portions of the facade, in which different materials are used. Iron has in many respects the advantage of other materials in the facility with which the effect may be changed by new combinations of form. The Stewart iron building, on Broadway, for example, which has the credit of being the largest iron building in the world, and which follows the columnar and arched style of construction, presents, notwithstanding a monotonous repetition of forms, a somewhat stately appearance. Some of the earlier iron business structures had a spider-like lightness of construction which reduced their dignity; at the same time they answered the purpose of furnishing abundant light to the floors, which is not the case with some of the recent stone and brick edifices. Two of the old New York market houses, Clinton and Thompson, are of iron, and succeeded to wooden structures. The new Washington Market, which is of iron, owing to its extended area offered a fine opportunity for the exhibition of roofwork, dispensing as iron does with much of the pillared support requisite for wooden roofs. The moderate height of the structure, which is surrounded by an arcade of iron and glass, is not sufficient to allow of any bold and striking effects. The decorations, apart from the arched windows and entrances, consist of *bas relief* panel moldings of flower and fruit, with projecting heads of animals above. Iron and terra-cotta have been happily combined in this structure, concerning which we may have more to say at some future time.

Iron balustrades for stairways date far back, but at first they were mainly plain bars, with no recommendation but utility, whereas now, made in arabesque and other open patterns, they add greatly to interior structural beauty. Architects have turned handsome balustrade designs to good account in bordering successive landings in the spacious and deep wells that furnish interior light to some of our city buildings. Coated with color and picked out with gilt, the designs are sometimes rich and intricate, like interlaced ornamentation; in others they may be likened to a succession of central bosses, from which radiate curved and spiral forms; occasionally they are of a certain arabesque style, with graceful curvilinear lines set between slender shafts. Much of the iron railing introduced into offices for purposes of partition is of an exceedingly rich character without being overcrowded with details. No small amount of taste has been developed in the front railings of buildings; these are in great variety. An excellent feature, commencing well with the dignity of massive business edifices, such as the Mills and Washington buildings, New York City, is in massive iron gateways treated in true Romanesque style, with highly characteristic patterns. In the Mills building especially a fine scenic effect is thus secured, the vestibule, its central steps and arched and pillared landing and artistically treated walls being brought into view.

(Continued on page 17.)



IRON IN MODERN ARCHITECTURE.—STONE-STREET ENTRANCE TO THE PRODUCE EXCHANGE, NEW YORK.

(or other fluid used) up to a point a little above the zero on the scale of the tube, a cork is inserted to prevent evaporation, and the flask and tube then immersed in water in a glass cylinder, the water being kept as nearly at a temperature of 15° as possible. In a few minutes the height of the fluid in the tube is read off on the scale as accurately as possible. If a piece of black paper is held behind the tube, and all readings are made on the lowest point of the meniscus, $\frac{1}{16}$ cm. can be accurately measured.

The weighed sample of powdered coke, No. 1, is now carefully introduced into the fluid in the tube by means of a funnel; the funnel is cleared of all adherent particles, and after the cork is again inserted the apparatus is gently shaken till all coke powder settles in the fluid. After again cooling the apparatus to 15° C., the height of the column in the tube is read off as before. The difference between the two readings of course gives the volume of the powdered-coke substance, free from pores, and by dividing the weight of coke used, in gram., by the number of c. cm. displaced, we get the specific gravity. Thus, if we took 25 gram. coke, and we found that

ple No. 2 is carefully read off, with the same precautions as before, and, as the pore spaces of the coke were fully filled up by the fluid in the beaker, we now get the volume of coke plus pore spaces, and from this again the specific gravity of the actual coke in question. Thus, taking 25 grams. as before, and finding a displacement of 28.75 c. cm. we have 0.87 as specific gravity of coke plus pore space. We thus arrive at the proportion of volumes, in the coke under examination, of coke substance proper and of pore-space:

25 grams. coke + pores = 28.75 c. cm.
25 " coke powder = 13.9 c. cm.
25 " contain pores = 14.85 c. cm.

Or, taken on 100 grams. of coke, the coke substance would occupy 55.60 c. cm., the pore space would occupy 59.40 c. cm., giving a total volume of 115 c. cm.; and 1 c. m. of the coke would weigh 869.6 kg. For the above tests there are required only two weighings (exact to 0.01 gram.) and three readings of the tube, which can all be done in half an hour.

oxidation of copper at these high temperatures would have the same final results. Inversely, the refrigeration of the oxide, more or less decomposed, in atmospheric air effects its reoxidation if the matter is sufficiently porous. When determining copper as cupric oxide, it is necessary not to raise it to a temperature at which it might melt, or even become agglomerated. If the copper is in large excess, as in preparing nitrogen by passing air over copper turnings heated in a tube, there is formed merely cupric oxide if the temperature is sufficiently low. If the middle of the tube is heated more strongly there is formed also cuprous oxide. When the oxygen is insufficient in quantity to saturate all the copper we never obtain an intimate mixture of the two oxides without fusion. On cooling slowly the red and the black oxides are found distinctly separated.

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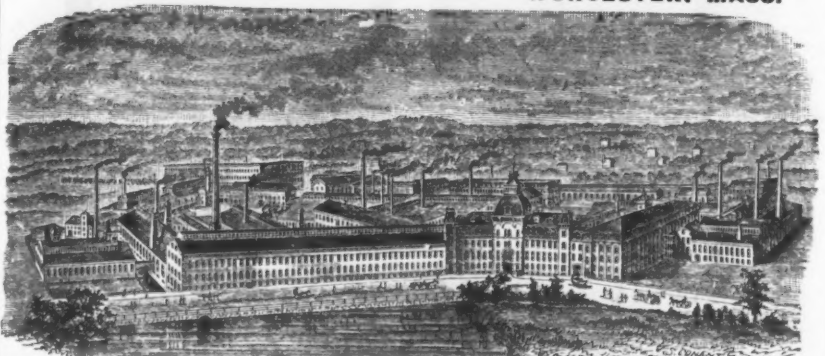
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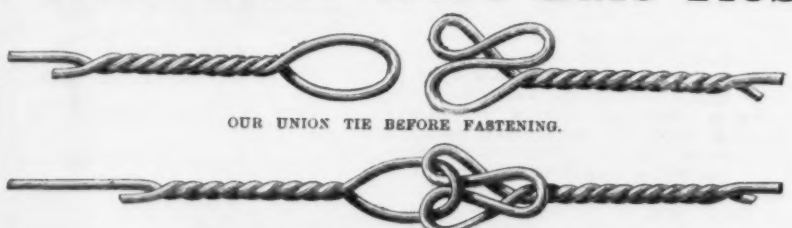
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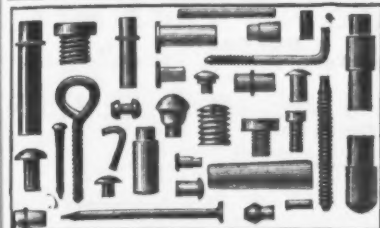
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How Gun-Cotton is Made.

It is not generally known that there is but one place in the United States where gun-cotton is manufactured, but such is the case. The Navy, up to six months ago, was obliged to depend upon England for all the gun-cotton used. It was decided to erect a manufactory at the torpedo station in Newport Harbor, Rhode Island, and in due season it was in successful operation and is now able to supply all that is required for sea-going men-of-war and torpedoes. In the manufacture of gun-cotton the best cotton waste and the strongest and purest nitric and sulphuric acids are used for the explosive. There is only one manufactory in this country that can supply the sulphuric acid. The cotton waste, after it has been hand-picked for the purpose of removing the dirt and grit, is placed in boiling tanks, where it is allowed to remain for four hours. It is afterward subjected to a thorough washing and is reboiled. This operation removes all oily matter and leaves the cotton harsh and stiff. It is then dried in rooms heated with the waste air from a drying-box. After undergoing this treatment the cotton rolls up into snarls and bunches, and in order that the acid may have a freer access to it is passed through a shedder and converted into a fluffy state. It is afterward exposed in an air-tight box for several hours to a temperature of 200°, which practically deprives it of all moisture. From the air-tight box it is removed to the dipping-room, where there are iron troughs filled with one part nitric acid and two parts of sulphuric acid. Into these troughs the cotton is placed, one bundle at a time, and allowed to remain about 10 minutes, long enough for it to be thoroughly soaked. The acid is hand-pressed from the cotton, which is then placed in covered earthen jars, where it remains 24 hours, undergoing chemical transformation. In view of the fact that much heat is evolved during the chemical reaction, it is found necessary to place the jars in pots and surround them with flowing water, which serves to keep them cool.

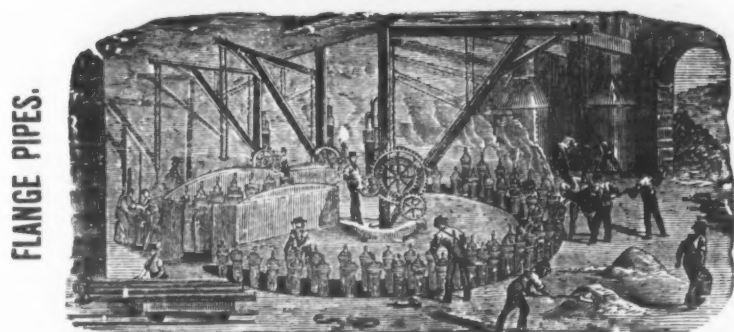
The cotton is now nitrated, and is practically gun-cotton, but the acid, still mechanically held, must be wholly removed, or it would be apt to quickly deteriorate and become extremely dangerous. The charges, therefore, are taken one by one and placed in an acid wringer and plunged into a large tub which is kept filled with running water, in which a large wheel is rapidly turned in order to subject the cotton to a thorough washing. This latter process is continued till no acid is perceptible to the taste. It is then subjected to a still further washing and boiling in an alkaline mixture, this being necessary in order to remove every trace of acid. The cotton is now in long shreds and balls, which can be used or stored without danger, the processes of conversion and cleansing being completed, but for military use it must be put into a more compact form. For this purpose the gun-cotton, in charges of 300 pounds, is thrown into a pulping tub, where, mixed with water, it is ground by steel cutters into a fine pulp. The grinding and breaking up of the cellular tissue of the cotton has made it more or less dirty, and it is necessary, therefore, to expose it to frequent washings in the poaching-tubs, from which, after treating it with limewater to make the moisture slightly alkaline, it is drawn up into a large iron tank, where it is fed to the molds, which, under a moderate pressure, pass the water from the pulp and trim out cylinders of cotton about 8 inches high and 3 1/2 inches in diameter. These cylinders are then placed under a hydraulic press and exposed to a pressure of about 1700 pounds to the square inch, or about 8 tons on each. The cylinders are pressed into hard cakes or disks, some 2 inches high and 3 1/2 inches in diameter, with a specific gravity a little greater than water. They are then packed in boxes of 50 pounds each and kept in magazines for general use. Gun-cotton is, from its great explosive power and the conditions of safety attached to its storage, superior to any other known explosive for naval warfare. Since the introduction of gun-cotton the gun-cotton torpedo system has been introduced at the station. These torpedoes now take the place of the heavy, unwieldy gunpowder torpedoes, which, with their charges, weigh 380 pounds. The gun-cotton torpedo only weighs 75 pounds.

Electricity Compared with Gas.

The London Statist refers to the expert evidence taken by a committee of the British Parliament, with the object of determining the relative cost of electric lighting and gas. In so doing it gives the history of Mr. Edison's station in New York, and decides that the financial result "absolutely and finally disposes of any idea that electric lighting in England contains the germs of remunerative investment." The cost of the station, the editor says, is somewhat in excess of £200,000, and the annual expenditure is at the rate of nearly £16,000 a year, without allowing for depreciation, sinking fund or interest on capital. The excess of receipts over actual cash outlay amount to about £600 a year, or 3 per cent. on the capital invested. When, however, a due allowance is made for unforeseen contingencies, such as the bursting of a boiler, or other heavy casualties, it will be seen that the alleged profit is illusory, and if, at most, expenditure is equal to revenue, it is certainly not less. In order to appreciate the precise nature of the result of this experiment, it is necessary to suppose that each glow-lamp is replaced by a 5-foot gas-burner, and that the amount of gas consumed to produce an equivalent of light be computed. The result of this calculation gives 6s. 11d. as the cost per 1000 feet of the gas thus consumed. If, however, a 16-candle lamp be held to compete with a 7-foot gas-jet, then the equivalent is as nearly as may be 5s. per 1000 cubic feet. To compete with gas at 3s., the cost of maintenance—i. e., of production—must be reduced by two-thirds. On examining the means of reducing the cost of establishment, there is no reason to doubt that an equally efficient plant could be laid down in England for half the sum expended in New York; but it is improbable that the cost of maintenance can be seriously diminished.

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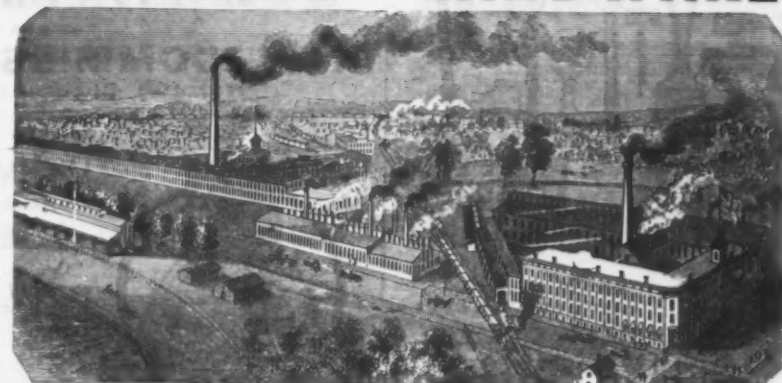
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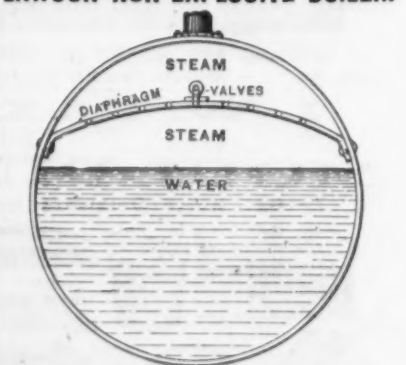
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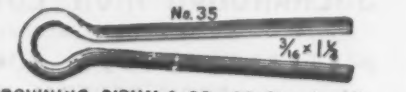


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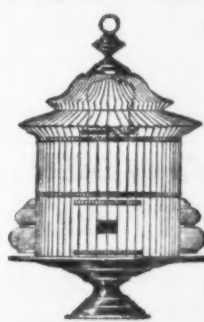
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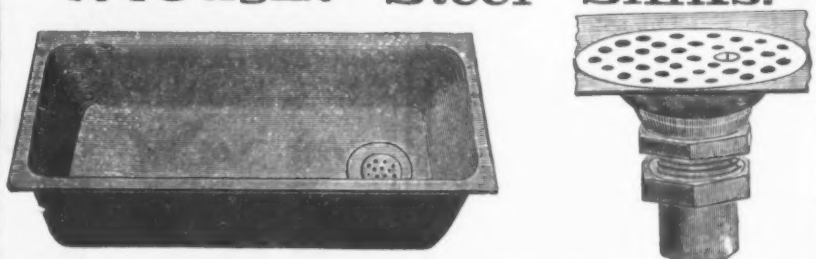
FIG. 120.



FIG. 200.



FIG. 70.

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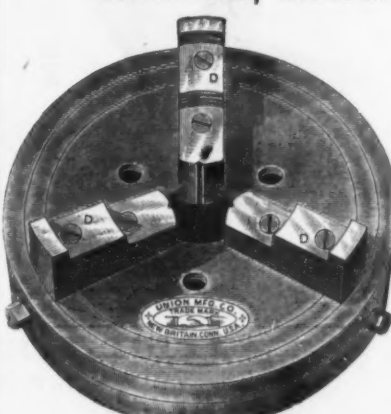
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SEAMLESS DRAWN BRASS & COPPER TUBES,
CUT NAILS, HORSE NAILS, FORGING, &c.**NAHUM STETSON, Jr., Agent, 73 Pearl Street, New York.****New Inventions.**

G. D. Whitecomb, of Chicago, Ill., has patented a power mining shovel which may be worked at any height and inclination. The shovel has a long handle which enters with its end into a horizontal cylinder to which steam or compressed air is admitted. The cylinder is supported on trunnions which rest upon the top of a central post. This connection permits the cylinder to vibrate vertically and also horizontally. The free end of the shovel is held up by a rope passing over a pulley and attached to a ratchet-wheel which is engaged by a pawl. When the pawl is lifted up, the length of the rope may be altered, and thus the shovel may be raised or lowered. A tripping cord operates a locking device which holds the shovel in position to keep its load. The shovel is hung on trunnions, and when the tripping cord is pulled the locking device is disengaged and the shovel is free to tip and discharge its load.

C. W. Levally, of St. Paul, Minn., is the patentee of a bolt-cutting tool. This tool consists of two handles pivoted to a common head. The head has a longitudinal slot, in which a stationary knife is arranged. The two handles terminate in toothed segments that engage a sliding block when the handles are brought together. Through this block passes a bolt, which in its turn passes through the hollow shank of a movable knife. By closing the handles the block is forced forward and carries the movable knife against the fixed knife. When the handles are opened their toothed segments are entirely disengaged from the sliding block, and thus the movable knife may be adjusted by partially rotating said block.

A scale for ascertaining the net weight of an article without replacing it upon the scale after removal from its receptacle has been patented by W. R. Morse, of Chester, Ohio. The scale has the customary standard for supporting the scale beam. This beam extends to the right and left of the standard, and each arm has the customary movable weight and end-weight pan. Both beams are graduated from the center outward. The platform is supported upon a knife-edge at the center of the beam, while the latter oscillates on a knife-edge formed on the standard. The two knife-edges are out of line horizontally. The article to be weighed is, with its package, placed on the platform, and the poises are adjusted on one beam arm to ascertain the gross weight. Then the package is emptied and is alone placed upon the platform. By moving the poise of the second arm until it counterbalances the gross weight, the net weight will be registered and may be read off without mental calculation.

A new process of forming nails without upsetting them by a header is as follows: Where a four-sided projecting head is desired the larger part of the metal necessary for forming the projecting part of the head is disposed or worked into a rib extending along one edge of the bar. The bar is then cut into a series of separate nail blanks. So much of the metal of the rib as goes into these nail blanks is then by compression made to flow back and laterally out, so as to form two or more of the projecting sides of the head. Where heads are desired which shall extend out on only two sides of the nail, as in the so-called "finishing nail," the rib is made to contain only so much metal, as is necessary to form such two projecting sides. After the nail blanks are sheared off, the projecting metal is forced out laterally, similar as in the four-sided head. H. Greer, of Chicago, Ill., the inventor of the above process, states that it may also be employed in the manufacture of spikes.

A machine for flanging metal plates has been invented by A. Wilbur, of Allegheny, Pa. Two horizontal rolls, one above the other, are journaled to the machine frame. In front of these rolls a table projects upwardly. This table is placed at a distance from the lower roll equal to the thinnest iron to be worked. The table is provided at its bottom with journals entering adjustable bearings. Each bearing consists of a horizontal bracket slotted lengthwise to receive a sliding block. This block is in contact at one end with the journal, while its opposite end is in contact with a coiled spring. The spring may be compressed more or less by means of a set-screw. In this way the bearing is made yielding, and the table may be so placed as to adjust the machine to any thickness of metal.

W. Garrett, of Beaver Falls, Pa., has patented a new process of manufacturing split blanks from I-rails or I-beams. Old or new rails may be used, and they are by a series of rolls bent in such a manner that their flanges on both sides are forced outward and then toward each other, thus producing a double split blank. The first pass of the blank between the rolls bends the flanges outward. The next pass bends them toward each other, and upsets or thickens the web of the rail. By the next pass the head is reduced in width and increased in length, while the flanges are bent still further toward each other. Then the head is still further thinned out and the flanges are made to closely approach each other. For the final pass the rolls are made quite plain, so that the head and web are merged into each other and the flanges are caused to meet. In this way a blank of uniform thickness and width is formed, having in one of its edges a slit or division.

A. Krupp, of Essen, Germany, has patented in this country a new process of smelting nickel and cobalt ores. The process is based upon the properties of nickel and cobalt to assimilate or absorb both oxygen and carbon. To obtain a homogeneous malleable product, it is necessary to employ means to prevent such absorption of carbon. To this effect the smelting is effected in the presence of an oxidizing agent in such a manner that the latter will gradually give up its oxygen as the smelting progresses. As an oxidizing agent the inventor employs permanganate of potash or permanganate of soda. The oxide of nickel or cobalt is reduced at a moderate heat to avoid fusion and also to avoid the absorption of carbon. The somewhat porous material thus obtained is then impregnated with the permanganate containing about 4 per cent. of salt. The product is dried and smelted in a blast furnace at a high tem-

perature. The permanganate will now counteract the deleterious effect of the carbon from the gases evolved, and is itself partially reduced, so that a homogeneous and malleable metal is obtained.

W. H. Cowdery, of Ashtabula, Ohio, has patented a new method of making hay forks and rakes. The fork blanks are cut with a curved body, a shank and sufficient metal upon either side of the junction of the shank with the body to make two teeth. By this same operation of the dies holes are made in the blank where the teeth meet the body. These holes are intended to give a finish to the corners and allow a ready forging or drawing out of the teeth. The holes are of oblong form, and, when the teeth are turned to be drawn out, provide an incline which will prevent "backing" of the metal when being hammered. The blank is forged at one heat.

Oil Wells in Wyoming Territory.

Prof. Samuel Aughey, Territorial geologist of Wyoming, says the *Independent Journal*, has just returned to Denver from an official visit to the new oil regions of that Territory. Regarding the oil fields, he states that his investigations during his recent trip were devoted principally to the Powder River region. The oil springs and escapes hitherto observed occurred in the sandstones and conglomerates of the Dakota group, which group is the base member of the cretaceous. In the oil basin on the Powder River, near Arthur's ranch, about 4 miles are covered by these oil phenomena. Professor Aughey found, however, an extension of this basin to the south. In this extension four additional springs and escapes were observed. Here, however, the oil emerges from the jurassic marls and triassic red sandstone. He is now of the opinion that the oil in this entire basin has its original source in these triassic sands and conglomerates; that they have underground connections is evident from the fact that the oil from all the springs and escapes, and also from the wells that have been sunk, have the same specific gravity of 23° of the Baumé scale. The work of development in this basin has just begun. A crew of eight men is now at work sinking shafts, and a large force will immediately be employed in the work. A loghouse has been put up for shelter, and preparations have been made for an active development of the wells. One shaft has been sunk to the depth of 15 feet, which produces, when the water is kept out, six barrels of oil every 24 hours. Another shaft, which promises even better results, has also been started and work will be continued during the entire winter.

Among the interesting things discovered in the extension of this oil basin is a magnificent spring of salt water which bubbles out a few feet from an oil spring. While salt springs and salt wells are common phenomena in the oil regions of Pennsylvania, Russia and India, this is the first one discovered among the oil springs of Wyoming. It is also remarkable for the clearness of its water, the traces of the iodides and bromides which it contains, and its attractive taste to all who partake of it. It has been reported to the professor that the work in the Rattlesnake oil region is also being rapidly pushed. Two drills are at work there, one of which has reached a depth of 400 feet, and the other has penetrated 300 feet. Professor Aughey is deeply interested in the geological relations of the oil-containing rock, and proposes to continue his investigations. Their relation to the great coal-bearing strata throughout the territory is a question not entirely determined, and he will devote considerable time and study to the investigation of that interesting subject.

Bricks Made of Glass Sand.—M. Hignette in the *Bulletin Technologique des Ecoles Nationales d'Arts et Metiers*, says an exchange, describes a new ceramic product from the waste sands of glass factories, which often accumulate in large quantities, so as to occasion great embarrassment. The sand is subjected to an immense hydraulic pressure, and then baked in furnaces at a high temperature, so as to produce blocks of various forms and dimensions, of a uniform white color, which are composed of almost pure silica. The crushing load is from 370 to 450 kg. per square centimeter (between 2 and 3 tons per square inch.) The bricks, when plunged in chlorhydric and sulphuric acids, show no trace of alteration. The product has remarkable solidity and tenacity; it is not affected by the heaviest frosts or by the action of sun or rain; it resists very high temperatures, provided no flux is present; it is very light, its specific gravity being only 1.5, and it is of a fine white color, which will make it sought for many architectural effects in combination with bricks or stones of other colors.

The Fish River Caves, which are said to surpass the Mammoth Cave of Kentucky, have had their names altered by the New South Wales Government, and will henceforth be known as the Jenolan Caves. The keeper reports that he has made another interesting discovery, having found the entrances to several new caves, the existence of which has hitherto been unknown. Having proceeded a short distance into one of them, he was lowered down over a precipice, at the bottom of which he found a number of fossil bones. Some of the remains are stated to be those of an animal of the tiger species, and the others are at present unknown. The exploration of the interior of the caves was, however, retarded for the time being, owing to their being flooded by heavy rains.

In Michigan, there are 117 firms engaged in the manufacture of salt, operating 101 steam and 271 pan blocks. There are besides 4500 covers for the manufacture of solar salt. The total manufacturing capacity of the wells in operation is 3,875,000 barrels. The amount of salt actually manufactured during the year ending December 1 was 3,252,175 barrels. At Marine City borings for a well struck a solid bed of pure rock salt at a depth of nearly 2000 feet. The product from this point finds the readiest market on account of its superior quality.

Paris, 1878.

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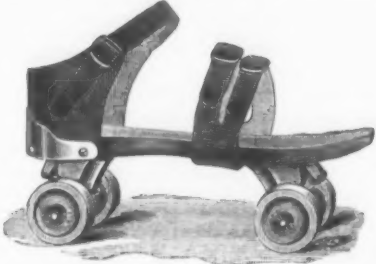


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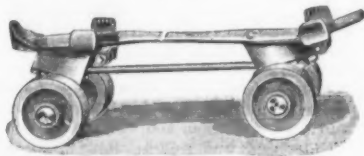
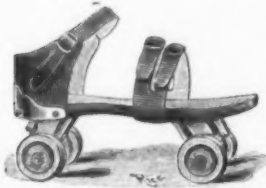
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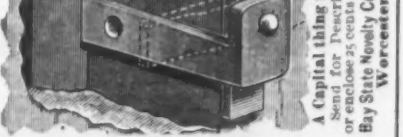
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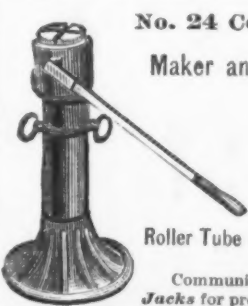
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Annual Review of the Metal Market for 1884.

The general decline of raw material during the year was very marked in metals, Copper in particular, which dropped toward the close to a figure heretofore unknown. A glance at former prices will show this:

	COURSE OF PRICES AT NEW YORK—CENTS PER POUND—IN GOLD.				
	July 1, 1873.	Dec. 31, 1880.	Dec. 31, 1881.	Dec. 31, 1882.	Dec. 31, 1884.
Lake Copper.....	24 1/2	21	18	15	11
Straits Tin.....	31 1/2	24 1/2	21	18 1/2	16 1/2
Domestic Lead.....	5 1/2	5 1/2	4 1/2	3 1/2	3 1/2
Spelter.....	7 1/2	6 1/2	5 1/2	4 1/2	4 1/2
Antimony.....	13 1/2	14 1/2	13 1/2	11 1/2	10 1/2
Coke Tin, pr. bx. \$9 1/2	\$5 1/2	\$5 1/2	\$5 1/2	\$5 1/2	\$4 1/2

Everything seemed to combine to disturb trade: first the Wall street panic in May; then the cholera in Europe, followed there by a colonial bank panic between Amsterdam and Batavia, and on this side by a Presidential campaign of more than usual excitement, simultaneously in Europe by the rise in the discount rate of the Bank of England, and terminating with a financial disturbance in Vienna, the relations between France and China meanwhile drifting into open warfare. But for the fine crops on all hands the year would have had few redeeming features.

Copper.

Lake Superior opened at New York at 15¢ and Chili Bars in London at £58, the lowest price during a decade, having been £56. 15/ in 1883; £62. 17/ 6 in 1882; £57 in 1881; £55 in 1880; £54 in 1879; £55 in 1878; £64 in 1877; £71. 10/ in 1876; £79. 10/ in 1875, and £74. 10/ in 1874. Charters on the West Coast were: 40,800 tons in 1883; 41,900 in 1882; 40,200 in 1881; 41,500 in 1880; 50,600 in 1879; 48,000 in 1878, and 44,000 in 1877. In New York, in spite of the gradual decline in Chili Bars in London to £56, there was a good deal of strength and confident feeling in the market in January. The export from the United States to Europe in 1883 had been larger even than was supposed, some 18,000 tons of 2240 lb, consumption being 35,000 tons. The available stock on January 1 was reduced to a minimum, so that any extra demand for Lake would have required shipments thence this way by rail. The export in 1883 had been 12,000,000 lb Lake, 4,000,000 lb of other brands, and between 22,000,000 and 24,000,000 lb Pure, in the shape of Ore and Matte, equal, as stated above, to about 18,000 tons, instead of 15,000, previously estimated. The visible supply in London, Liverpool, Swansea and France on January 1 was 48,527 tons, against 47,053 in 1883; 50,598 in 1882; 60,610 in 1881, and 62,140 in 1880, and the price of Chili Bars, £58, against £65 in 1883; £71 in 1882; £61. 15/ in 1881, and £65. 15/ in 1880. Best Selected meanwhile also declined £2, to £62. The exportation of Pyrites from Spain during the first months of 1883 had been 481,597 tons, against 492,312 in 1882, and 386,650 in 1881; of Pure Copper 10,555 tons, against 17,897 and 14,260 in 1882 and 1881 respectively. About 1,000,000 lb of Lake sold during the month, the market remaining steady throughout at 15¢, other brands ranging between 14 1/2¢ and 14 3/4¢. American production in tons of 2240 lb had been in Michigan 26,500, Montana, 11,000; Arizona, 11,000; Colorado, 700; other States and Territories, 2800 tons, and from imported Pyrites, 1000—together 53,000 tons. According to Messrs. Henry Merton & Co.'s (London) estimate, Copper production had increased during a period of five years, as under:

	1879.	1880.	1881.	1882.	1883.
Germany.....	9,000	10,800	12,742	13,250	13,863
England.....	3,402	3,902	3,575	3,404	3,000
Austria-Hungary.....	1,221	1,410	1,431	1,431	1,500
Spain and Portugal.....	32,097	35,474	38,586	38,774	43,735
Italy.....	1,140	1,380	1,480	1,400	1,600
Russia.....	3,081	3,081	3,000	3,000	3,000
Sweden and Norway.....	3,212	3,500	3,625	3,388	3,430
Japan.....	1,900	1,900	1,900	2,800	2,800
Algeria.....	500	500	600	600	600
Cape of Good Hope.....	4,328	5,008	5,087	5,000	5,000
Bolivia.....	2,000	2,000	2,655	3,350	3,350
Canada.....	50	50	50	221	239
United States.....	49,318	42,916	37,989	42,900	41,029
Chili.....	23,350	25,010	30,882	30,300	32,080
Mexico.....	400	400	333	401	489
Peru.....	600	600	615	440	335
Argentina Republic.....	300	300	307	400	253
Newfoundland.....	1,500	1,500	1,718	1,500	1,053
Venezuela.....	1,597	1,800	2,823	3,700	4,018
Algeria.....	9,500	9,700	10,000	8,650	12,000
Totals.....	149,156	151,007	159,711	174,596	193,454

The great dullness in general trade in February caused a weaker market in Copper, Lake declining to 14 1/2¢, and other brands to 14¢ at 14 1/2¢, sales of Lake not exceeding 1,000,000 lb. In London the market first recovered £1, but subsequently the advance was lost again. The statistical position of the metal on this side was looked upon as favorable at the time to the producing and holding interests. For the moment, however, manufacturers were not very active, trade being hampered by the long and severe winter, bad roads and inundations. If manufacturers, on the one hand, were unable to ship many goods, Copper Ore was, on the other hand, slow in reaching the seaboard. From Liverpool simultaneously the opinion was expressed that the lessened supply of Ores and Matte from here in the spring might exercise a powerful influence on the English market. The export of Domestic Ingot Copper during the first 11 months of 1883 had been 17,438,018 lb, against 2,998,079. Spain during the same time had exported of Pyrites 521,060 tons, against 533,995 in 1882, and 417,735 in 1881, and of Ingot Copper 21,394 tons, against 19,920 in 1883, and 16,026 in 1881. March brought no increase of activity, sales of Lake Superior being limited to 1,000,000 lb, the price keeping steady at 14 1/2¢, and other brands at 14¢ at 14 1/2¢. There were rumors during the latter part of the month that the Lake companies had made a big sale in Europe "to arrive," at figure considerably below the one current here. The export of Ingot Copper from the United States during the first seven months of the current fiscal year proved to have been 11,934,673 lb, against 2,096,387 the previous year, and of Ore 9277 tons, against 1874. Spanish export of Pyrites had been 546,565 tons, against 571,441 in 1882, and

452,881 in 1881; of Ingot Copper, 24,230 tons, against 22,771 and 24,499. The price in London during the month gave way to £61 @ £62 for Best Selected, and £54 @ £54. 10/ for Chili Bars. In April Lake Copper opened lower at 14 1/2¢, and in the course of the month declined to 14 1/2¢; other brands ruled at 13 1/2¢ @ 14 1/2¢. It was confirmed that the Lake companies had sold some 6000 tons on the Continent at 13¢, delivery spread over five months commencing with June. April 11 a press dispatch was received from Boston to the effect that the Calumet and Hecla Company, of Lake Superior, had passed its May dividend, owing to the low price of Copper and the delay in making sales of products. It was said that the company had at its mine 15,000,000 lb of Copper, and, being unable to dispose of this, came to the above resolution, its stock momentarily declining from \$2.33 to \$2.20 in the Boston market. In London this action was misconstrued, a momentary panic seized upon Chili Bars, which dropped to £53. 15/., but soon righted again to £57. 10/., when the matter had been explained by cable, closing at this figure, while Best Selected wound up at £63. 10/.

May opened with a sale by the Lake companies to manufacturers of 12,000,000 lb, at 14¢, delivery spread over four months beginning with June. This and the subsequent Wall street revelations and panic caused a very dull feeling here and a lower market in London, where the market closed at £55, Chili Bars, and £62. 10/., Best Selected. The belief was gaining ground that the Calumet and Hecla alone might produce 40,000,000 lb of Copper during the year, and the productive capacity of Rio Tinto also began to be much discussed in Europe. Apprehension was expressed in England that during the year Copper shipments from this country would prove very large. The progress of Ingot Copper production alone by the Rio Tinto, of Spain, without counting its large output of Pyrites and shipments of these, was shown to have been very rapid. In 1876 only 946 tons were made; in 1877, 2495; in 1878, 4184; in 1879, 7179; in 1880, 8559; in 1881, 9466; in 1882, 9740, and in 1883, 12,295. It was stated that the same mine had made contracts to deliver per annum 400,000 tons of Pyrites. Export of Ingot Copper from the United States during the first eight months of the fiscal year, 12,196,038 lb, against 2,187,185 in 1883. In June news reached us from Arizona that production had been stopped there for the time being by the inundations cutting off the supply of fuel. Meanwhile export returns showed that there had been shipped from the United States during the first nine months of the fiscal year 11,184 tons of Ore, against 2561 tons in 1883, and 13,127,424 lb of Ingot Copper, against 3,246,324. The month developed but little animation, sales of Lake being restricted to 750,000 lb at 14¢ @ 14 1/2¢, other brands selling at 13¢ @ 13 1/2¢. It was stated that the capacity of output of the Calumet and Hecla in 1885 would be 50% greater than in 1884. In London Chili Bars opened at £56. 10/., and closed the month at £54. 10/. Export of Domestic Ore during the first 10 months of fiscal year was shown to have been 14,021 tons, against 3870 in 1883, and of Copper 13,857,674 lb, against 4,502,395. Spanish export, first quarter 1884, 3363 tons Ingots, against 5935 in 1883 and 6042 in 1882; Pyrites, 158,794 tons, against 148,059 and 147,078. July was again a very dull month in the Copper trade, sales of Lake Superior not exceeding 600,000 lb in New York at 13 1/2¢ @ 14 1/2¢, closing firm at 14¢, and other brands at 13¢ @ 13 1/2¢. Chili Bars receded from £54. 10/ to £53. 10/., closing at £54. Spanish export during the first four months, 213,357 tons of Pyrites, against 253,357 the previous year, and in 1882 199,737; Ingot Copper only 5815, against 7804 in 1883, and 7681 in 1882. The import from the United States into Liverpool and Swansea during the first six and a half months has been 7433 tons of Pure Copper, against 3235 in 1883. The preliminary report of the directors of the Rio Tinto Company stated that, with a greater Pyrite accumulation and an ample supply of water, last year's Copper production would be exceeded in 1884, and still more so in 1885.

August was as devoid of activity in the Copper trade in this city as its predecessor. In London, on the contrary, there was a passing stir and advance of £2, a dispatch from Lisbon stating that the Portuguese Government had taken sanitary measures against the port of Huelva, where the Pyrites and Copper are shipped, on account of the cholera; later on it was proved that the epidemic had not made its appearance anywhere in Andalusia. Sales at New York meanwhile were limited to 600,000 lb of Lake at 13 1/2¢ @ 14¢, at which the market closed. The export from Spain during the first five months had been 265,372 tons of Pyrites, against 265,009 in 1883, and 251,510 in 1882, and of Ingot Copper 6304 tons, against 9739 and 9599. It was reported from New South Wales that the colony produced 8873 tons of Copper in 1883, against 4805 in 1882, 5361 in 1881, 5262 in 1880, 4107 in 1879, 4983 in 1878, 4153 in 1877, 3106 in 1876, 3520 in 1875, and 3635 in 1874. The import of Copper into England during the first seven and a half months had been 60,584 tons Fine, against 55,409 in 1883. London opened at £54. 5 with Chili Bars, and closed the month of August at £53. 15/. In September estimates of Domestic Copper were made, according to which the Lake companies would turn out in 1884 some 68,000,000 lb; Montana, 40,000,000; Arizona, 22,000,000, and other regions 3,000,000, which would aggregate 133,000,000 lb. Deducting therefrom probable shipments of 10,000,000 Lake, 32,000,000 Montana, and 5,000,000 Arizona, &c., a total of 47,000,000 lb, there would be 86,000,000 left for home consumption, while the latter was not believed to exceed 80,000,000, so that 6,000,000 lb would have to be added to the stock of January 1, 1884, which would then constitute the stock to be carried into 1885. Not unlikely considerations of the kind weighed with the Lake companies, for they resolved to let manufacturers have 20,000,000 lb at 13¢, delivery to extend all the way into the month of March, 1885. Import into Liverpool and Swansea during the first eight

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WITNESSES—
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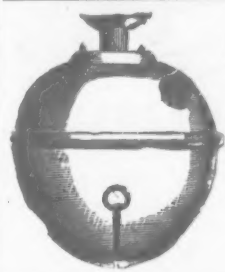
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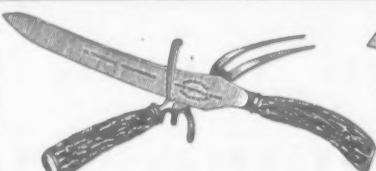
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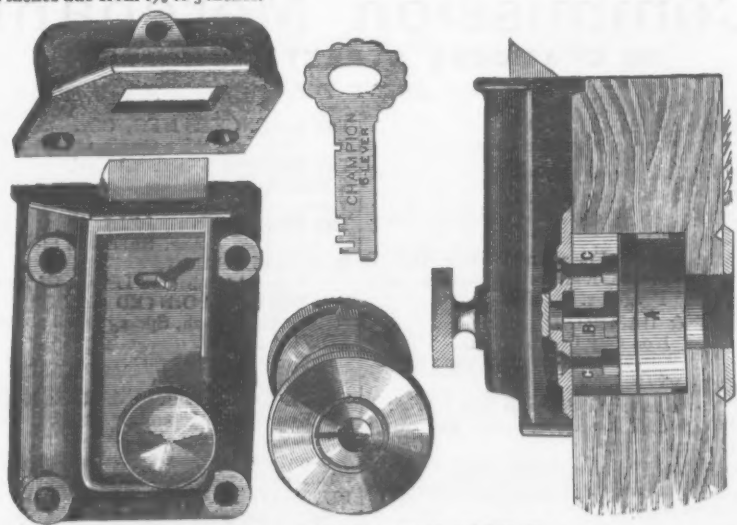
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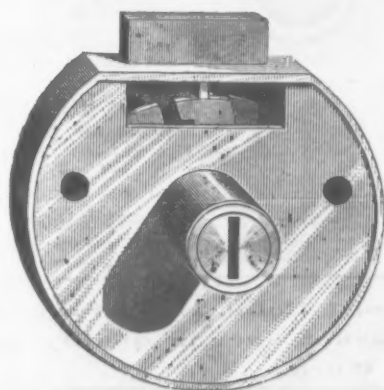
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months from this country, 9724 tons of Fine Copper, against 5314 in 1883, and 460 in 1882. Chili Bars opened at \$54, and remained so to the close of September. The report from Liverpool, dated September 1, remarked: "Some 10,000 tons of American Ore have been sold on private terms, for delivery during the next four months, the chief portion being on the basis of Chili Bars at the time of delivery. To these large forward sales we mainly ascribe the present low price of Copper, in view of the fact that 12 months ago the visible supply from other sources was 7386 tons greater than at present, while values were \$10. 5/ higher. Smelters have now little or no interest in supporting the market." Our market on September 6 closed at 13 1/4¢ @ 13 1/4¢, Lake, and 12¢ @ 12 1/4¢, other brands. The tendency on the part of Copper mines to make up for the low price current by a larger output, so long as the latter left them any margin of profit, had during the year become more and more apparent; hence the growing conviction that the aggregate production in this country and Spain would perhaps prove greater even for 1884 than was estimated in the month of September, and the more and more inherent weakness of the metal, in spite of the acknowledged increased consumption everywhere. Sales on the spot in October were confined to 750,000 lb Lake at 13¢, other brands bringing 12¢ @ 12 1/4¢. London opened at \$54 with Chili Bars, and closed at \$53. Visible supply of Copper in England and France October 1, 40,823 tons, against 49,695 in 1883, and 46,935 in 1882; price of Chili Bars, \$54, against \$63 and \$71. Chili's export (seven months), 24,600 tons, against 23,000 in 1883 and 24,400 in 1882. Copper importation into England (first eight months), 66,953 tons, against 62,670 in 1883 and 50,000 in 1881; and the export, 45,036, against 39,640 and 35,757. Import into Liverpool and Swansea alone from the United States (first seven and one-half months), 11,447 tons, against 5548 in 1883. Spanish Pyrite exportation for the first six months, 325,325 tons, against 307,414 in 1883 and 314,482 in 1881; of Ingot Copper, only 7836 tons, against 10,877 in 1883 and 11,021 in 1882.

November opened amid great stagnation in general trade, in consequence of the elections and the uncertainties involved subsequently, Lake Copper opening at 13¢, but at the close of the month not being worth over 12 1/4¢, other brands ranging between 11 1/4¢ and 12 3/4¢. London opened at \$52. 15/, and closed the month at \$51. Another Rio Tinto report fixed the dividend at 10/, against 12/ the previous three years, 10/ being equal to 5¢. The visible supply of Copper in England and France November 1 was 41,760 tons, against 46,833 in 1883, and the price of Bars \$52. 15/, against \$61. 5/ in 1883 and \$69. 5/ in 1882. Spanish Pyrite export during the first seven months, 365,943 tons, against 360,086 in 1883 and 361,410 in 1882; of Ingots only 8947, against 12,764 and 13,095. It was rumored that two Montana and the Lake companies had made large sales for forward delivery in Europe. December opened in London at \$50. 10/, later on gave way to \$47. 7/6, and finally recovered to \$48. 17/. New York opened with Lake Copper at 12 1/4¢ @ 12 1/4¢, but finally dropped to 10 1/4¢ @ 11¢, sales being made to manufacturers in a moderate way at the inside figure. The disturbed condition of the London and New York markets arose from the revelations about sales in Europe which were brought to light about the middle of the month, confirming the November rumors in an aggravated shape. It was stated that the amount of Montana Copper sold in Europe was to consist of the product of four months from the Anaconda and of six months from the Montana, estimated to be in the aggregate 13,000 tons of Matte. The quantity of Copper contracted for product from Lake Superior was differently reported to be either 5000 or 10,000 tons, and it was added that the deliveries thereof were to run all the way into the early months of 1886. The worst features in these contracts were that they were not made at certain fixed prices. The Montana sales were made on the basis of Best Selected, and those of Lake Superior on the price of Chili Bars, monthly average in the London market as the deliveries were made, with an addition of \$4 per ton—some said at the price of Chili Bars on delivery plus \$4. Simultaneously it appeared that the Quincy Company were being sued by the remaining members of the Lake syndicate for the alleged swerving from the agreement entered into that all the sales in Europe should be effected for joint account of the managing company, the Calumet and Hecla. The confusion and uncertainties thus created, and the prominence given on both sides of the Atlantic to all that relates to the enormous product of Copper mining in this country, present and prospective, precipitated the extraordinary fall in prices. It was shown by a reliable statistician that in 1880 the output of Copper in the United States was 27,000 net tons, of which the Lake companies contributed 22,204 tons, or 82 per cent of the total. In 1881 the figures were respectively 32,000 and 24,363 net tons, and 76 per cent. In 1882 they stood 49,912 and 25,439 tons and 62 per cent, and 58,000 and 30,000 net tons and 52 per cent. In 1883 the same statistician estimated production as likely to reach 70,000 net tons, of which the Lake Superior districts would furnish about 34,000 net tons of Ingot, or less than 50 per cent. In spite of the fact that during these five years the production of the Lake mines increased from 22,000 to 34,000 tons of Copper, or 55 per cent., their proportion of the aggregate in the whole country had dropped from 82 to 50 per cent. Import of Copper from the United States into Liverpool and Swansea during the first 11 months of 1884 was 15,851 tons Fine, against 7996 tons in 1883 and 645 in 1882. Export of Pyrites from Spain during the first eight months of 1884, 405,679 tons, against 407,032 in 1883 and 414,448 in 1882; of Ingot Copper, 11,162 tons, against 15,848 and 14,483. Messrs. James Lewis & Son, Liverpool, remarked in their circular of December 1: "The competition of American and other Ingot Copper has materially affected the value of English Best Selected, and, unless English smelters are willing to pay better prices for American Ore and Matte than they at present offer, we may look to

see ere long the chief part of the American production arriving here in the form of Bars and Ingots, and India supplied direct with American Sheet Copper." It is, indeed, to be hoped that American Copper and Brass manufacturers may, with cheap Copper at their disposal, succeed in 1885 in establishing a good export trade, a thing they have hitherto neglected altogether too much, because it suited their convenience to limit their efforts to the home trade almost entirely. It is to be presumed, as the above remarks from Liverpool broadly hint, that the time is not distant when we shall cease to be so much at the mercy of English smelters. Spanish export of Pyrites during the first nine months, 452,119 tons, against 443,038 in 1883 and 444,448 in 1882; of Ingot Copper only, 13,059, against 18,096 and 14,483. German production in 1883, 17,936 tons of Fine, against 16,292 in 1882. Chili's export amount loading and chartered to November 20, 1884: 42,156 tons, against 40,376 in 1883; 40,376 in 1882; 37,264 in 1881, and 43,163 in 1880, showing that in spite of low prices Chili has gradually resumed "ante-bellum" figures.

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	1881.	1882.	1883.	1884.
January.....	10 1/4	17 1/4	18 1/4	14 1/4
February.....	10 1/4	17 1/4	18 1/4	14 1/4
March.....	10 1/4	17 1/4	18 1/4	14 1/4
April.....	10 1/4	17 1/4	18 1/4	14 1/4
May.....	10 1/4	17 1/4	18 1/4	14 1/4
June.....	10 1/4	17 1/4	18 1/4	14 1/4
July.....	10 1/4	17 1/4	18 1/4	14 1/4
August.....	10 1/4	17 1/4	18 1/4	14 1/4
September.....	10 1/4	17 1/4	18 1/4	14 1/4
October.....	10 1/4	17 1/4	18 1/4	14 1/4
November.....	10 1/4	17 1/4	18 1/4	14 1/4
December.....	10 1/4	17 1/4	18 1/4	14 1/4

Tin.

The year opened at 19¢ with Straits Tin, declined in the course of January to 18 1/4¢, and wound up the month at 18 1/4¢; London opened at \$85, gave way to \$81, and finally recovered to \$84. The visible supply in New York and Boston on January 1 was 3000 tons, December consumption having been 800 tons. Total export of Straits Tin from Singapore and Penang in 1883 had been 6945 tons to the United States, against 7300 in 1882, and to England 9490, against 4830—together 16,435 in 1883, against 12,130 in 1882. Production in 1883 had been in Cornwall 9300 tons; Banca, 4314; Billiton, 3800; the Straits, 16,761; Australia, 10,625; and Bolivia, 400 tons—together 45,770 tons. The total decline in value in London in 1883 had been \$7. 12/6 per ton. In 1882 the production was 40,300 tons, in 1881 it was 38,713, and 36,994 in 1880. On January 1, 1884, the price of Straits was \$85 in London, against \$92. 12/6, January 1, 1883, and \$108 January 1, 1882. Messrs. French & Smith, London, remarked at the time that great impulse had been given to Tin production in the Straits, causing an increase of shipments thence of 884 tons over 1882, of which quantity probably 2000 tons were from accumulated stocks; that Australia showed no increase; that advances from there rather pointed to a falling off in production, and that the remaining countries turned out the same amounts as in 1882. Tin production during a period of five years, 1874 to 1878, was 159,737 tons, and during the ensuing one, 1879 to 1883, it was 208,586. The average price of Straits Tin in London during a decade was \$98 in 1874; \$85 in 1875; \$74 in 1876; \$68 in 1877; \$61. 10/ in 1878; \$72 in 1879; \$87 in 1880; \$92. 10/ in 1881; \$102. 10/ in 1882, and \$93. 5/ in 1883. January was a dull month in New York in the Tin trade, and February showed but a slight increase of activity. Opening at 18 1/4¢, our market closed at 18¢, while London, from \$83. 15/ at the outset, with some fluctuations during the month, ended the same at \$82. 5/. The rise in the discount rate, and the large Straits production and shipments, tended to unsettle and weaken the London market. The visible supply on this coast on February 1 was 3000 tons, January consumption having been 850. Tin importation into the United States during the first 11 months of 1883 had been 12,202 tons, against 9296 in 1881, and the re-export 2653 and 1111 tons, respectively, leaving net 9549, against 8185. Greater animation was imparted to Tin in March by a resumption of speculation for a rise in the London market, where the chief operator succeeded in advancing the price temporarily, a similar movement being inaugurated on this side. Opening at New York at 18¢, the market closed at 18 1/4¢, while in London it advanced from \$82. 5/ to \$84. 10/. The visible supply on this coast on March 1 was 2500 tons, 700 tons having gone into consumption in February. The import of Tin into the United States in 1883 had been 28,130,996 lb, against 237,664. Net import into the United States during the first seven months of fiscal year, 17,454,855 lb, against 16,074,128 in 1883. January shipments from the Straits Settlements to the United States had been 6476 piculs, against 13,366 in 1883; 16,816 in 1882; 2180 in 1881; 23,796 in 1880, and 4635 in 1879.

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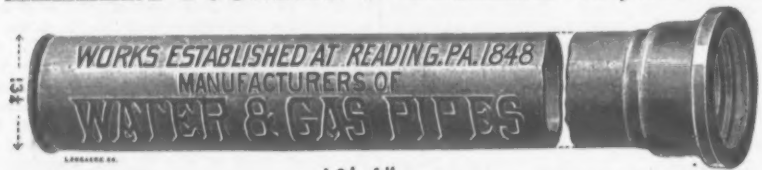
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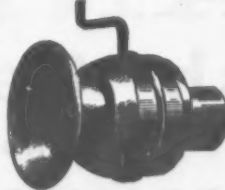


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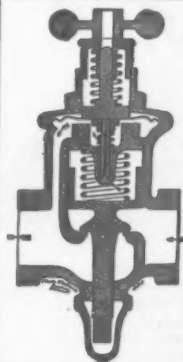
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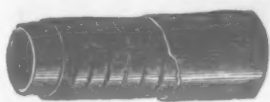
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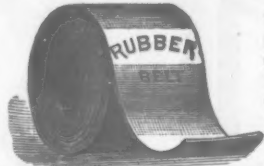
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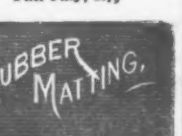
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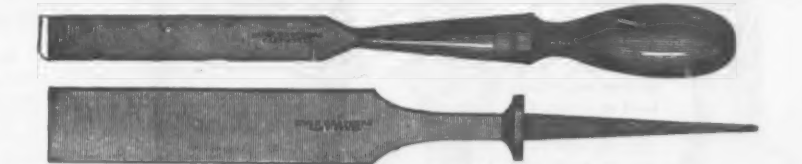
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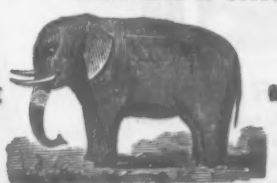
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against 17,048,336. Shipments from the
Straits Settlements to the United States dur-
ing the first quarter were 15,724 piculs,
against 26,685 in 1883, 33,252 in 1882, 9875
in 1881, 53,411 in 1880, and 35,322 in 1879.
On June 1 the visible supply here was re-
duced to 1980 tons, after a May distribution
of 750 tons. The price opened at 18 3/4¢, and
in London at 283. 10/, spot Tin actually be-
coming scarce in this city and leading to a
local squeeze, advancing the price to 19 3/4¢,
but subsequent arrivals and the general feel-
ing of indifference in trade circles caused the
spurt to be but short-lived. We returned to
18 3/4¢, and London to 283. Import into the
United States for the first ten months of the
fiscal year, 22,500,000 lb, against 23,384,032
in 1883; re-export, 63,245, against 101,636.
During the first nine months the net import
in tons had been 9393, against 9081.

While in July we were still laboring under
discouragement and bank restrictions, eman-
ating from the financial disturbances in
May, business in Europe received a severe
shock from the sudden appearance of the
cholera in Southern Europe—influences which
did not fail to restrict dealings in Tin.
Opening with a visible supply there of but
1800 tons of Tin after a June distribution of
700 tons, and the price of 18 3/4¢, we closed
the month at 18 3/4¢, London, meanwhile,
commencing it at 283, and, after continual
slight fluctuations, winding up at 282. 15/.
Shipments from the Straits Settlements to
the United States during the first four months,
22,867 piculs, against 34,866 in 1883; in 1882,
39,176; in 1881, 63,913; in 1880, 36,155;
and in 1879, 21,590. While up to August
all attempts to get on foot a genuine Tin
speculation in London and New York had
been thwarted by untoward circumstances,
the situation had gradually been changed
from a statistical point of view. Heavy
arrivals poured into New York and Boston,
and August opened with a visible supply of
2250 tons, after a July consumption of 800
tons. The price here stood 18 3/4¢, and in
London 282. 15/. early in the month, in
order to close at 18 3/4¢ and 282. New South
Wales had produced 8800 tons of metallic
Tin in 1883, against 8059 in 1882; 7591 in
1881; 5476 in 1880; 5107 in 1879; 6085 in
1878; 7230 in 1877; 5449 in 1886; 6958 in
1875, and 4101 in 1874. Tin shipments
from the Straits Settlements to the United
States during the first six months had been
only 26,651 piculs, against 52,489 in 1883;
56,901 in 1882; 34,239 in 1881; 71,740 in
1880, and 48,641 in 1879. About the middle of
August the delay in the arrival of 300 tons on
board the Lydian Monarch caused a tempo-
rary rise from 18 3/4¢ to 19¢, but disappeared
after the steamer had safely got into port.
The difficulties between France and China
had meanwhile come to such a pass that for
all practical purposes the two countries
seemed at war, with a prospect that the
Chinese demand in Singapore and Penang
would soon cease altogether, setting adrift
to be placed elsewhere in the future 7000
tons of Tin per annum which China used to
take from there. This was consequently a
new element of weakness till lastingly re-
moved. The visible supply here on Septem-
ber 1 was 2650 tons, after an August con-
sumption of 800 tons; in Europe and Amer-
ica taken together it was 13,510 tons,
against 15,737 in 1883, and 14,729 in 1882;
the price in London was 282, against 294 12/
in 1883, and 2107 in 1882. In spite of
these still favorable statistics the belief was
growing stronger that Tin would go lower
from general causes, counteracting all ten-
dency toward a revival in trade in Europe
and here. Being left to its own merits, the
metal therefore gave way in London in all
September to 279. 2/6, and in New York
from 18 3/4¢ to 18¢. Total export from the
Straits Settlements to the United States
during the first eight months had been 2530
tons, against 4965 in 1883; to England, 8295,
against 5440; grand total, 10,825, against
10,405.

October commenced with a visible supply
here of 2400 tons, after September distribu-
tions of 900 tons, against a visible supply of
3725 on October 1, 1883, and of 9505 in 1882.
London opened at 279. 2/6, and New York
at 18¢. During the month London fell into a
panic with Tin in consequence of the dis-
comforture of the leading speculator there,
who, having dabbled in Chili Bars and been
severely punished, was compelled to relin-
quish his Tin holdings, too, which were thus
thrown on the market and produced a de-
cline to 272. 15/, closing, after a rebound to
277 at 274. 5/. New York fell to 16 3/4¢,
recovered to 17 3/4¢, and wound up at 16 3/4¢.
Tin shipments from the Straits Settlements
to the United States during the first seven
months, 37,408 piculs, against 67,119 in
1883; 59,207 in 1882; 41,127 in 1881; 85-
126 in 1880, and 56,065 in 1879. The visible
supply in London and Holland October 1
stood 14,593 tons, against 13,805 in 1883,
and 13,043 in 1882, and the price 279. 2/6,
against 295. 10/ in 1883, and 2107 in 1882.
The total new supply for Europe and
America, Straits and Australian, had been
during the first nine months 18,070 tons,
against 19,346 in 1883; 15,182 in 1882, and
14,533 in 1881. The visible supply on No-
vember 1 on this coast was 3180 tons,
against 3500 in 1883; the October consump-
tion had been 800 tons. The price here was
16 3/4¢; in London, 273. 10/. During the
month news was received that a settlement
of the difficulty between France and China
was likely, and even near at hand, causing
London to improve to 275, but in the mean-
time a colonial bank panic had broken out
between Amsterdam and Batavia, reveal-
ing a most precarious state of affairs in
the relations between those places, which,
as may be supposed, caused the Tin specu-
lators to pause and reflect; London, there-
fore, receded to 274, at which it closed.
New York meanwhile, though inactive, re-
mained steady. Shipments from the Straits
Settlements to the United States during the
first eight months had meanwhile been
41,857 piculs, against 78,739 in 1883, 77,606
in 1882, 53,712 in 1881, 99,705 in 1880, and
63,814 in 1879. December opened with a
visible supply in New York and Boston of
2680 tons, after November deliveries of 900
tons, and at the price of 16 3/4¢, London
cabling 274. The month developed great
restlessness and weakness in the London
market, with a temporary drop to 272. 12/6,
not unlikely induced to some extent by the
panic in Chili Bars, which may have affected

some Tin speculators. Opening at 16 3/4¢,
the New York market displayed great irregu-
larity during the month, and for some time
fluctuated between 16 3/4¢ and 16 3/4¢, at
which it finally closed, London winding up
at 275. 15/. Shipments from the Straits
Settlements to the United States during the
first nine months were 46,225 piculs, against
95,215 in 1883, 88,444 in 1882, 68,186 in
1881, 10,764 in 1880, and 78,176 in 1879.
The visible supply in London and Holland
December 1 had been 11,446 tons, against
12,305 in 1883. During the first 10 months
there were shipped from the Straits to this
country 55,279 piculs of Tin, against 99,164
in 1883, 96,772 in 1882, 75,682 in 1881, 12-
321 in 1880, and 93,855 in 1879.

PRICE OF STRAITS TIN AT NEW YORK.

Jan. '83. 21¢ @ 21 1/4¢	Jan. '84. 18 1/2¢ @ 18 1/2¢
Feb. '83. 20 3/4¢ @ 20 3/4¢	Feb. '84. 18¢ @ 18 1/2¢
Mar. '83. 20 3/4¢ @ 21 1/4¢	Mar. '84. 18¢ @ 18 1/2¢
April '83. 21 1/4¢ @ 21 1/4¢	April '84. 18 1/2¢ @ 18 1/2¢
May '83. 21 1/4¢ @ 21 1/4¢	May '84. 18 1/2¢ @ 18 1/2¢
June '83. 21 1/4¢ @ 21 1/4¢	June '84. 18 1/2¢ @ 18 1/2¢
July '83. 21 1/4¢ @ 21 1/4¢	July '84. 18 1/2¢ @ 18 1/2¢
Aug. '83. 21¢ @ 21 1/4¢	Aug. '84. 18 1/2¢ @ 18 1/2¢
Sept. '83. 21¢ @ 21 1/4¢	Sept. '84. 18 1/2¢ @ 18 1/2¢
Oct. '83. 20 3/4¢ @ 21¢	Oct. '84. 18 1/2¢ @ 18 1/2¢
Nov. '83. 18 1/2¢ @ 18 1/2¢	Nov. '84. 18 1/2¢ @ 18 1/2¢
Dec. '83. 18 1/2¢ @ 18 1/2¢	Dec. '84. 18 1/2¢ @ 18 1/2¢

Lead.

The month of January was one of the most
active and excited that had been seen in the
Lead trade in New York for some time, lead-
ing to transactions figuring up some 8000
tons, the chief operator for a rise having ap-
peared and driven the price from \$3.60 to
\$4.37 1/2. The market could not be sustained,
however, and soon recoiled at \$3.90, at which
it closed. Common English opened in Lon-
don at £12 @ £12. 5/. The Lead movement
in England in 1883 had been: Imports, 101-
000 tons, against 87,741 in 1882, and 93,400
in 1881; exports, 39,700, against 37,378 in
1882, and against 42,964 in 1881. Spanish
export during the first 10 months had been
103,130 tons, against 97,507 in 1882, and
86,172 in 1881. German production in 1883
had been 90,732 tons, against 92,591. Tariff
revision being again spoken of in this coun-
try, the discussion of this question exercised
a weakening influence on the price toward
the close of the month. In February the
same operator made a renewed attempt at
Lead speculation without any better success,
manufacturers still holding too much Lead
from their previous November purchases;
the price was temporarily pushed to \$4.05 @
\$4.10, but returned to 4¢, at which it closed
dull. Lead production in the United States
in 1883 was shown to have been 129,742 tons
of 2240 lb, against 118,651 in 1882; increase
9%. Base bullion production embraced in
the above had been 66,500 net tons of 2000
lb in Colorado, 28,862 in Utah, 6000 in
Idaho, 2400 in New Mexico, 1000 in Arizona,
and 1500 in California—together, 116,262 net
tons. Spain exported during the first 11
months of 1883, 116,341 tons of Lead,
against 106,972 in 1882, and 94,991 in 1881.
A more confident feeling obtained in March.
Bad roads in the West, in consequence of a
long and severe winter, high freights and a
scarcity of ores combined to curtail produc-
tion, and, as at the same time White-Lead
manufacturers agreed to raise the price for
their product 1/4¢, the price of Lead at New
York advanced to \$4.15, sales amounting to
3000 tons. Common English Pig was cabled
from London, £11. 5/ @ £11. 15/. Export
of Pig Lead from Spain in 1883, 126,888
tons, against 115,368 in 1882, and 110,875 in
1881. The aggregate European output in
1883 had been 336,500 tons of Pig Lead, our
own 130,000 and in other countries 3500-
together, 470,000 tons of 2240 lb, against
440,000 in 1881, an increase in two years of
about 7%.

In April it was found that the spring trade,
especially in Lead, was a great disappoint-
ment; hence those still interested in Lead
came to the resolution to close out, 9000 tons
changing hands, 6000 of which to be deliv-
ered gradually during the ensuing five
months, at 3 3/4¢, to which figure Lead de-
clined from 4 1/4¢ early in the month, closing
with sales at \$3.70. All the speculative
holdings had thus passed into the hands of
bona fide consumers. Although it was re-
ported early in May that production at Lead-
ville had not yet been fully resumed, great
flatness prevailed in the New York Lead
market, manufacturers being sufficiently
stocked and corrodors not being sanguine
about the near future. After fluctuating
during the month between \$3.55 and \$3.80,
Lead finally closed at \$3.70, sales amounting
to 1500 tons. On May 22 and 23 Lead re-
finers met at Chicago for the purpose of
agreeing, if possible, about the price at
which Lead was to be sold during the sum-
mer months, the proposition being to en-
hance it, but no understanding could be
arrived at. London meanwhile came
£11 @ £11. 10/, Common English Pig. In
June the plumbers' strike took away from
Lead the little strength that was left, and it
remained neglected, although it was re-
ported that at various points on West pro-
duction had not been resumed. Hardly
anything transpiring, the price receded to
\$3.60. London meanwhile cabled
steadiness. Although the plumbers' strike
was of but short duration, other strikes
bearing on building supervened; hence the
dealings during the month of July were con-
fined to 2000 tons at 3 3/4¢, which was also
the closing figure. Meanwhile production
had returned to a normal state. In Europe
quite a decline occurred, Common English
Pig dropping to £10. 10/ @ £10. 15/ in the
London market. August generally being
the month in which our most active Lead
season sets in, there was considerable disap-
pointment at the slowness of revival. The
chief operator, perceiving this, availed him-
self of the lull, which continued through the
ensuing month, in order to depress the mar-
ket, dull and weak as it was, still further if
possible. There sold in August some 3000
tons from \$3.60 down to \$3.52 1/2, the market
finally righting again and closing at \$3.55
@ \$3.57 1/2. Shipments from Spain during
the first five months had been 52,118 tons,
against 50,960 tons in 1883, and 47,370 in
1882. Common English Pig recovered in
London meanwhile to £11. 5/ @ £11. 10/.
Soft Spanish being simultaneously cabled
£10. 15/. While in Europe it was conceded
that a continuation of hostilities between
France and China would make a difference
in the export of Lead from Europe to the
latter country of 14,000 tons during a twelve-

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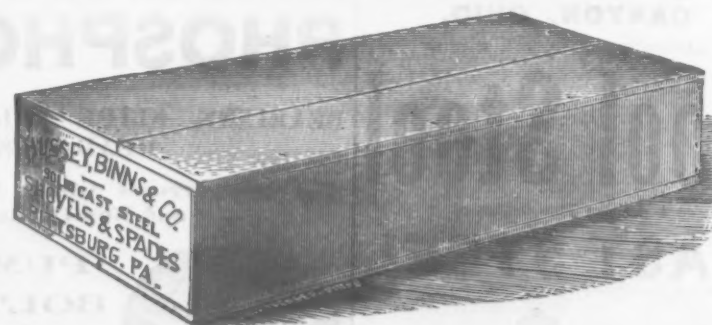
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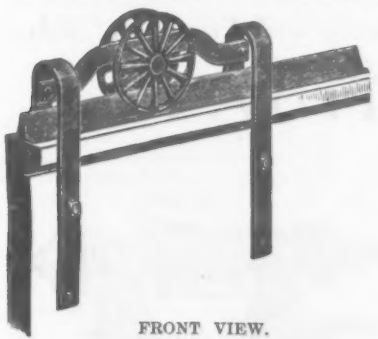
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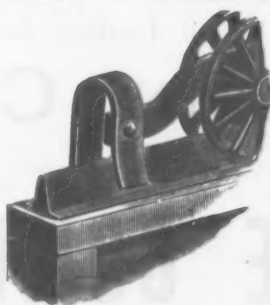
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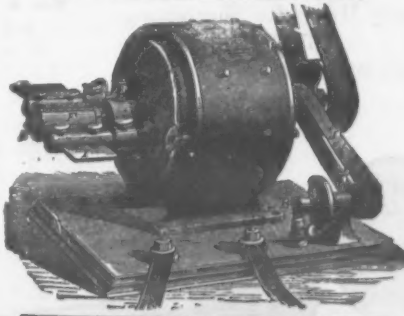
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month, the appearance of cholera in South-eastern Europe, if spreading to the Spanish Lead districts, would be calculated to diminish Lead shipments from there. Thus one consideration counteracted the other and imparted steadiness to the metal. Later on it was found that China received from England in 1884 only 4000 tons of Lead, against 10,000 tons in 1883.

In September the market continued lifeless and depressed till about the close of the month, when the operator alluded to, having secured Lead enough, tried to produce an advance, in which, however, he was but partially successful, sales being restricted to 2500 tons, the price improving from 3 1/4¢ to 3 3/4¢. Soft Spanish was cabled from London £10. 10/, a decline of 2/6 during a week. The speculation for a rise was continued into the month of October, when \$3.80 was realized for a few lots, the price then suddenly receding to \$3.65, total sales amounting to some 2500 tons. Shipments from Spain during the first six months had been 61,177 tons, against 61,863 in 1883, and 59,517 in 1882. London meanwhile recovered to £10. 15/ with Soft Spanish, in order to wind up the month at £10. 12/6. The fall trade not having answered expectations, and the West accumulating stock, a downward turn occurred in Lead prices in November, when, with sales of 2000 tons, the price suddenly gave way in New York from \$3.62 1/2 to \$3.30. Spanish Lead exportation during the first seven months, 67,468 tons, against 72,672 in 1883, and 67,627 in 1882. German production during the quinquennium 1874 to 1878 had been together 382,736 tons, and the next five years, 1879 to 1883, 455,320 tons. Soft Spanish Lead advanced in November to £10. 15/. In December there arrived rather better accounts from the West, where, in Colorado, Coke was reported to be scarce; it was at the same reported that Leadville had fallen off 600 tons in November, and asserted that Colorado would show that there was a falling off in Ore production there this year of 40,000 tons. Soft Spanish meanwhile rose in London to £11. The market in New York advanced from \$3.40 to \$3.70, closing flat at \$3.60, when it was ascertained that White-Lead manufacturers assembled at Pittsburgh had failed to agree about the price. Spanish-Lead exportation, which had been during the first eight months 75,596 tons, against 83,325 in 1883 and 77,503 in 1882, was shown to have been during the first nine months 85,029 tons, against 92,842 and 17,505.

PRICE OF COMMON DOMESTIC LEAD AT NEW YORK—CENTS PER POUND.

	1881.	1882.	1883.	1884.
January.....	5 1/4	4 1/4	4 1/4	3 1/2
February.....	5 1/4	4 1/4	4 1/4	4 1/4
March.....	5 1/4	4 1/4	4 1/4	4 1/4
April.....	5 1/4	4 1/4	4 1/4	4 1/4
May.....	5 1/4	4 1/4	4 1/4	4 1/4
June.....	5 1/4	4 1/4	4 1/4	4 1/4
July.....	5 1/4	4 1/4	4 1/4	4 1/4
August.....	5 1/4	4 1/4	4 1/4	4 1/4
September.....	5 1/4	4 1/4	4 1/4	4 1/4
October.....	5 1/4	4 1/4	4 1/4	4 1/4
November.....	5 1/4	4 1/4	4 1/4	4 1/4
December.....	5 1/4	4 1/4	4 1/4	4 1/4

Spelter.

On January 1 Common Domestic Spelter stood 4 1/4¢, Silesian 5¢, and Domestic Sheet Zinc 5 1/4¢ in the New York market, London cabling Ordinary, at shipping ports, £15. 5/. The market here developed a feeling of weakness early in the year from a lack of demand, and the price during the first month gave way to 4 1/4¢. Spanish Calamine exportation had been 27,864 tons during the first 10 months of 1883, against 23,605 in 1882, and 26,961 in 1881. Ore becoming scarce and dear out West, a better feeling manifested itself in February, and with a slight revival in the demand the price advanced to \$4.40. Similar reports reached us from Silesia, yet the London market remained depressed at £14. 12/6. Calamine exportation from Spain during the first 11 months had been 28,639 tons, against 24,597 in 1882, and 28,512 in 1881. In March many of the smaller producers in the West were compelled to stop production because of the ruinous condition of their industry, the price here advancing to \$4.65 in consequence. The import of Spelter into the United States in 1883 proved to have been 8,695,898 lb, against 25,651,567 in 1882. Spanish Calamine exportation in the same year had been 30,161 tons, against 26,481 in 1882, and 31,200 in 1881. London, meanwhile, advanced to £14. 15/. During the first seven months of the fiscal year 1884 there were imported net into this country 3,866,789 lb of Spelter, against 12,118,916 the previous year. In April speculative sales were begun to be made at 4 1/4¢ for June delivery, and, as the spring demand was the reverse of brisk, the price gave way from \$4.75, which it had reached in the meantime, to \$4.55. Silesian stood 5¢, and London £14. 10/. During the first eight months of the fiscal year there had been imported into the United States 4,470,075 lb, against 13,220,635 the previous year, the domestic export not exceeding 91,014 lb, against 805,212. In May renewed attempts were made to depress the price, but the news that Ore was even dearer in the West than it had been the previous month caused, on the contrary, a slight advance to \$4.60. Import into the United States during the first nine months of fiscal year, 4,637,697 lb, against 13,068,667 in 1883. Spanish Calamine exportation during the first quarter had been 5456 tons, against 4802 in 1883, and 8616 in 1882. Spelter production in the United States in 1883 had not increased, being, as before, 30,000 tons of 2240 lb, while in Germany it rose from 113,418 in 1882 to 116,854 in 1883. Import into the United States first 10 months of fiscal year, 4,803,083 lb, against 14,535,722 in 1883.

In July business became so dull that the demand fell off materially, and the price, which on the strength of a curtailed production had been run up to \$4.65 in June, receded to \$4.55. In London it declined to £14. 5/. Spanish Calamine export for the first four months, 11,742 tons, against 11,150 in 1883 and 11,349 in 1882. Middle of August the demand all of a sudden improved, causing an advance to \$4.70, but it soon slackened again, and September opened at 4 1/4¢. During the first five months of the year there had been exported from Spain 14,958 tons of Calamine, against 17,258 in 1883, and 14,700 in 1882. London gave way to £14. 2/6. In September European smelters tried to agree to reduce the output

8%, but no understanding was arrived at. Business in September continued flat in this city, so that with some difficulty the price was sustained at \$4.55; Silesian meanwhile stood 4 1/4¢. London recovered to £14. 7/6; it opened in October at £14. 10/. In October the syndicate of smelters in the West dissolved, and the price gave way here to \$4.35. In Europe a better feeling obtained, London advancing to £14. 15/. Spain had exported, during the first six months, 19,463 tons of Calamine, against 20,762 in 1883, and 17,651 in 1882. A very dull state of trade in Spelter prevailed during now and December, causing the metal to gradually recede to 4 1/4¢ @ 4 1/2¢, from which it did not recover. Spain exported of Calamine, during the first seven months of 1884, 22,161 tons, against 23,757 in 1883, and 19,029 in 1882. London, meanwhile, receded to £14. 5/. Spain had been shipping, during the first eight months, 22,975 tons of Calamine, against 25,266 in 1883, and 21,628 in 1882. Silesian gave way to \$4.80 in this market. From what transpired about the things out West, it seemed evident that the chief producers were trying, through persistent underselling, to kill off the small fry. Spanish statistics showed at the time that the export for the first nine months of 1884 had been 23,883 tons of Calamine, against 26,474 in 1883, and 21,628 in 1882.

LOWEST AND HIGHEST PRICE OF COMMON SPELTER—CENTS PER POUND.

	1881.	1882.	1883.	1884.
Jan.....	5 1/4	4 1/4	4 1/4	4 1/4
Feb.....	5 1/4	4 1/4	4 1/4	4 1/4
March.....	5 1/4	4 1/4	4 1/4	4 1/4
April.....	5 1/4	4 1/4	4 1/4	4 1/4
May.....	5 1/4	4 1/4	4 1/4	4 1/4
June.....	5 1/4	4 1/4	4 1/4	4 1/4
July.....	5 1/4	4 1/4	4 1/4	4 1/4
Aug.....	5 1/4	4 1/4	4 1/4	4 1/4
Sept.....	5 1/4	4 1/4	4 1/4	4 1/4
Oct.....	5 1/4	4 1/4	4 1/4	4 1/4
Nov.....	5 1/4	4 1/4	4 1/4	4 1/4
Dec.....	5 1/4	4 1/4	4 1/4	4 1/4

Tin Plates.

January was a dull month. Opening at \$4.85 @ \$5.05, Coke Tin declined toward the close to \$4.75 @ \$4.80, Liverpool being buoyant in the meantime at 15/3 @ 15/6. The general export from England in 1883 had been 277,300 tons, against 265,021 in 1882 and 243,381 in 1881. Import into New York alone in 1883, 2,193,978 boxes, against 2,265,033 in 1882. Net import into the United States the first 11 months of 1883 had been 206,459 tons, against 197,326 in 1882. In February a rather better feeling obtained in this market, with increased dealings in Plates to arrive, while Liverpool showed great irregularity at 15/ @ 15/3. Opening at \$4.75 @ \$4.80, Coke closed at \$4.60 @ \$4.80. Import into the United States in 1883, 493,380,745 lb, against 479,330,665 in 1882; re-exported, 1,666,702 lb, against 2,654,736. A fair business was done in March, Coke opening at \$4.65 @ \$4.80, and closing at \$4.70 @ \$4.90, while Liverpool became unsettled, ruling at 14/9 @ 15/. Early in April a drop occurred to \$4.50 @ \$4.55 in Coke, but a rebound followed soon after to \$4.75 @ \$5, at which the market closed. Liverpool cabled a fair trade at 15/3. Import into the United States during the first eight months of fiscal year, 324,161,835 lb, against 318,594,826 in 1883; re-export 515,464, against 819,168; net import, 323,646,371, against 317,755,658 lb. In May the New York market continued dull, and the Liverpool market weak at 15/. April shipments this way had been heavy—20,744 tons, against 18,187 in 1883, and 14,499 in 1882; during the first four months 70,382 tons had been shipped, against 65,239 in 1883, and 64,976 in 1882. The market closed at New York at \$4.75 @ \$4.85. Import into the United States during the first nine months of fiscal year, 367,229,755 lb, against 357,203,178 in 1883; re-export, 648,602, against 1,244,768; net import, 366,581,063 lb, against 357,203,178 lb, or 163,652 tons, against 158,910 tons.

In June our market was weak and inactive, but closed stronger at \$4.85 @ \$4.95. Liverpool meanwhile remained easy at 15/. Import into the United States during the first 10 months of fiscal year, 419,207,887 lb, against 403,380,218 in 1883; re-export, 706,332, against 1,427,776. Only a light trade was noticeable here in July. During the first five months the United States received 10,000 tons more Tin Plates from England than during the corresponding period of 1883. Our market, nevertheless, remained steady at \$4.90 @ \$5, Coke, of which the arrivals were light. Liverpool did not vary from 15/ @ 15/3. In August our market became easier, Coke closing at \$4.82 1/2 @ \$4.95, Liverpool meanwhile remaining strong at 15/3 @ 15/6. The dullness and weakness increased in this market in September. Opening at \$4 @ \$4.90, Coke Tin closed at \$4.70 @ \$4.85. Liverpool gave way to 15/ @ 15/3. Inactivity continuing in October, the market dropped to \$4.52 1/2 @ \$4.82 1/2. Shipments from England to all quarters during the first eight months were 195,400 tons, against 181,500 in 1883, and 181,900 in 1882. Liverpool declined to 14/3 @ 14/6. A very quiet state of affairs prevailed in this market in November, Coke Tin ruling \$4.62 1/2 @ \$4.70, Liverpool, though also dull, remaining steady at 14/3 @ 14/6. While Liverpool exhibited greater firmness and activity in December, our market did not revive, remaining barely sustained at \$4.50 @ \$4.60; importers were, however, more cautious in quoting anything lower for forward delivery, thinking, as they did, that bottom must about be reached. Average price of ordinary brands, December 31, \$4.69.

Note.—During the closing days of the year it transpired that the Lake companies had sold to manufacturers some 12,000,000 lb of Copper, delivery spread over five months, on the basis of the average prices of Chili Bars in London, the average of the quotations of the 10th to the 25th of the preceding month to determine the price which consumers are to pay. The price, which is not to be less than 10 1/2¢ when Chili Bars have averaged \$48 or under, is to advance 1¢ for every 10¢ increased average until \$53 or over is reached, when the maximum price is to be 11¢ @ 11 1/2¢.

Carnegie Bros. & Co., of Pittsburgh, have reduced the rents of all the houses occupied by employees of the Edgar Thomson Steel Works, at Braddock, Pa.

COVERT MANUFACTURING COMPANY.



COVERT'S HORSE AND MULE JEWELRY,

Consisting of Covert's celebrated Harness Snaps, Swivel Snaps, Open Eye Bit and Chain Snaps, Snap and Thimble for Horse and Cattle Ties. Rope Goods, consisting of Rope Halters, Horse and Cattle Ties, Halter Leads, Driving Reins, Weight Cords, Hammock Ropes, Hitching Cords, Lariat Tethers and Picket Pins. Also Leather and Web Horse Ties. Also Breast Chains, Halter Chains, Martingale Chains, Rein Chains, Post Chains, Stake Chains, Trace Chains, Heel Chains, Cow Tie Chains, &c.

*All Chains Warranted of our own Manufacture, and Carefully Inspected before leaving the Works.
CAR BRAKE and other Chains made to any specified length at same price as Coil lengths.*

CHAINS OF ALL KINDS Made From SAMPLE or DRAWING.

The Highest Grade of CRANE CHAINS and DREDGING CHAINS a Specialty.

Special Attention given to DIMENSION CHAIN and those requiring extra Strength and Wearing Qualities.

The above Goods fully Warranted and Guaranteed. Sold by all Leading Jobbers at Manufacturers' prices. For Catalogue and Price List, address

COVERT MANUFACTURING COMPANY, West Troy, N. Y.

EMERY.

Union Emery Wheels, Emery Wheel Machinery, Emery Hones and Rub Stones, Emery Wheel Dressers, Emery Cloth.

DIAMOND TOOLS.

Automatic Knife-Grinding Machine

Ware's Patent

Anti-Bursting Flanges.

QUARTZ.

Wooden Polishing Wheels.

Wood Wheel Machines.

CORUNDUM.

Polishing Belts, Polishing Belt

Machines, Polishing

Laths,

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Materials of all kinds.

PUMICE-STONE,

Powdered and Lump.

CLUE,

Especially for Wood's Polishing

Wheels and Belts.

UNION STONE COMPANY,

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GRINDING MACHINES.

PATENTEES AND MANUFACTURERS OF THE

UNION EMERY WHEEL.

Emery Wheel Machinery and Tools a Specialty for Grinding and Polishing.

EMERY. QUARTZ. CORUNDUM.

Best Material and Workman-
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Perfectly Balanced.

Wooden Polishing Wheels

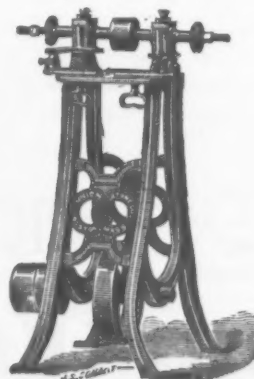
a Specialty.

Emery Hones for Sharpening

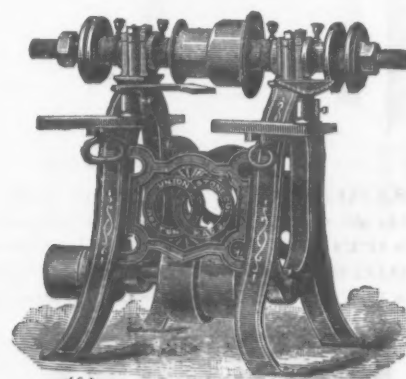
Tools.

Rub Stones for

Cleaning Castings.



No. A Machine has
3-1 in. Arbor

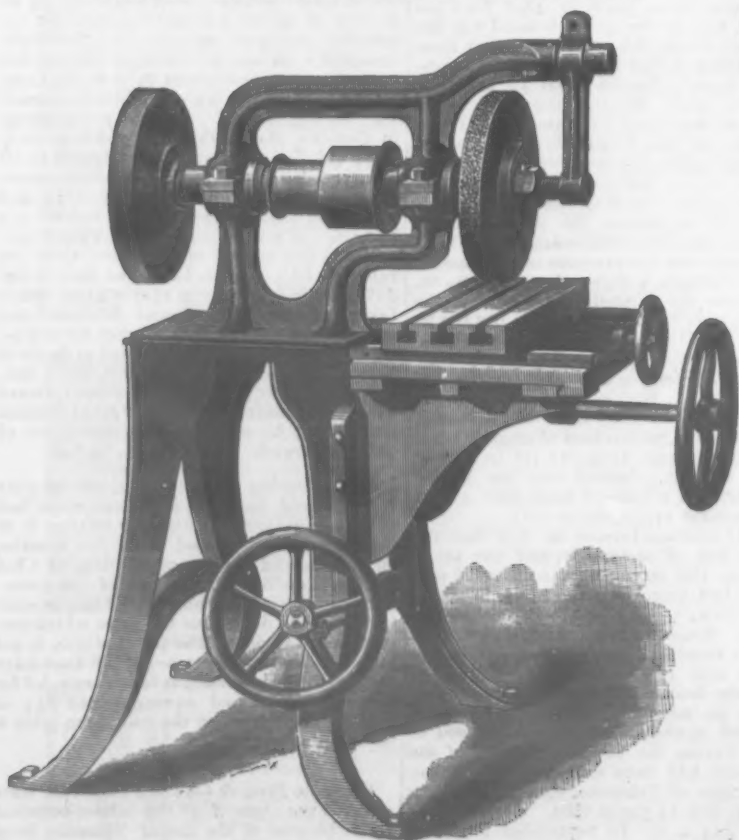


No. B Machine has 1-2 in. Arbor.

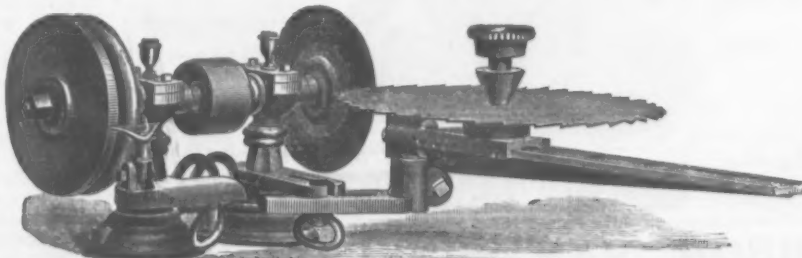


Diamond Tools for Turning Emery
Wheels.

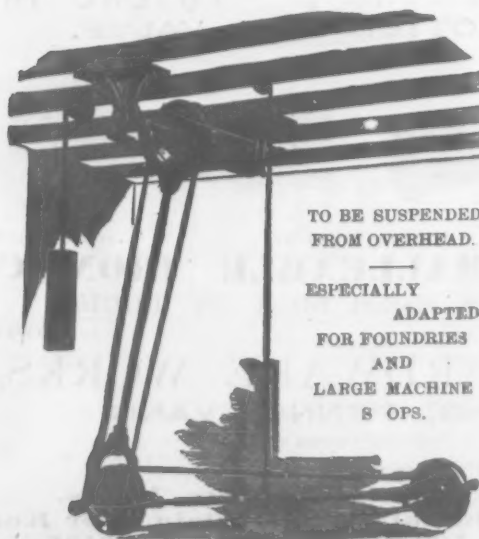
UNION EMERY WHEEL DRESSERS



Emery Wheel Surfacing Machine.



Saw Gumming Attachment, Shown on Our No. 0 Machine.

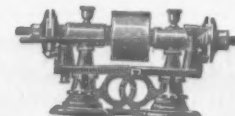


Swing Frame Grinding and Polishing
Machine.

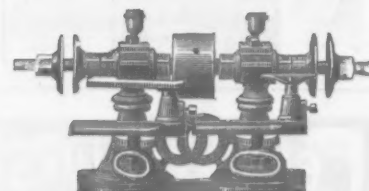
CATALOGUE
ON
APPLICATION.

TO BE SUSPENDED
FROM OVERHEAD.

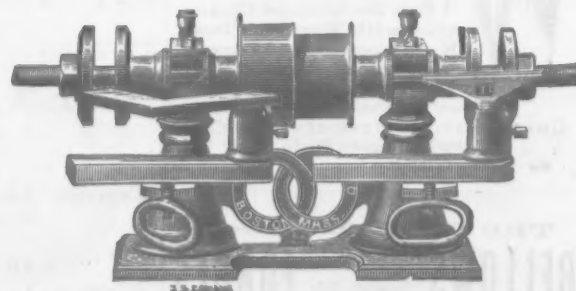
ESPECIALLY
ADAPTED
FOR FOUNDRIES
AND
LARGE MACHINE
SHOPS.



No. 000 Machine has 1-2 in. Arbor.



No. 0 Machine has 3-4 in. Arbor.



No. 2 Machine has 1 1/4 in. Arbor.

(Continued from page 1.)

A somewhat picturesque application of iron is that of iron lanterns in the center of ceilings of rooms, consisting of a series of frames elevated above or into the ceilings, and which are filled with stained or beveled glass. Iron skylight frames, many very artistically constructed, have come into general use, and they attest their superiority to wood. Iron columns and pilasters introduced for purposes of support into buildings of any pretension, and where decoration is sought, are no longer plain circular shafts surmounted

by a good proportion of the iron ornamentation appearing on panels, cornices, architraves, capitals of columns and the spandrels of arches in the work of the present day is attached by rivets, instead of being cast with the surfaces they cover. In bas reliefs, all the sharpness and precision of outline that can be desired is to be met with. The filling in of the upper sides of windows with open ironwork is a lately introduced decoration in lofty and massive structures, so also the attaching of iron ornaments in bar and spiral form against the face of brick portions

tain with either material alone. Modern city architecture, particularly that of New York City, is characterized by judicious combinations of various building materials. We no longer have distinctively iron buildings, nor stone buildings, nor yet brick buildings. But the best structures show a happy blending of brick and stone and iron. An example in point is afforded by the illustration on this page, which shows the Stone street entrance to the New York Produce Exchange. The lower portion of the building is stone. Above this is brick. The arch of the opening, the spandrels and the cornice

about which he is coiled, and whose wings extend backward to the face of the building and form a brace or support to the lamp, the observer is impressed with the wonderful diversity of shapes and purposes to which a single material may be adapted. The contrast is still further heightened by a glance at the steps leading into the building, which show another application of iron in modern buildings—the illuminated floor. Our engraving clearly shows the spheres of glass held in a frame of cast iron, which afford light to the space below the stairs without in any way detracting from their utility. All of the ironwork we have illustrated, except the window guards, was executed at the works of Messrs. J. B. & J. M. Cornell, this city.

The New Orleans Exposition.

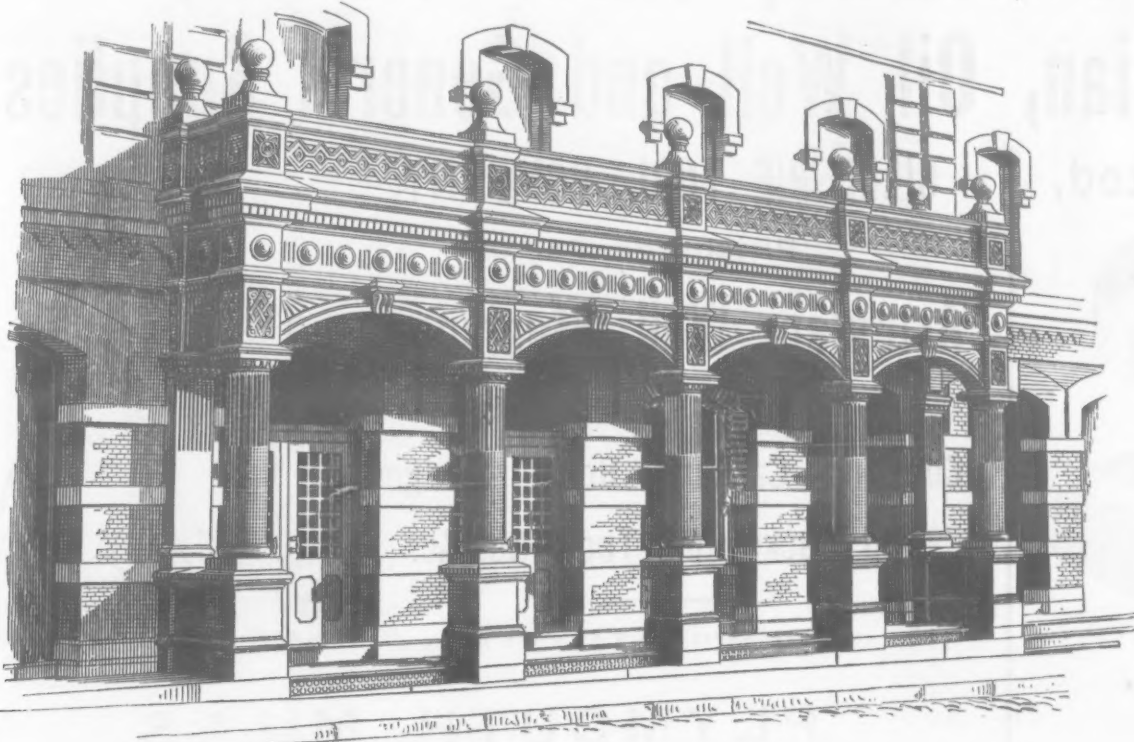
The original design of this gigantic enterprise, which opened on the 16th ult., was to mark the centenary of the first cotton export from the Southern States to England, six bags containing some 500 pounds being shipped in 1784 from Charleston to Liverpool. Its greatest interest, therefore, is in the cotton exhibition, although the primary design was afterward expanded and it became a world's fair. The Southern States are specially exerting themselves to show their progress and agricultural importance. Every Southern State sends extensive exhibits, and there is a strong popular belief here in the efficacy of the enterprise in aiding to obliterate sectional animosity. To promote this fraternal object there is projected for the early spring a joint encampment of veterans of both the Union and Confederate armies. The exhibition as it now appears is essentially an American and Mexican display, tinged from the locality with many tropical evidences, especially in the foliage and horticulture. The European nations are but sparsely represented. A large part of the foreign space originally assigned has not been taken, while the American demand for space was so excessive that it required an expansion of the original plans for the buildings. England, France, Belgium and Russia will have creditable displays; Germany, Austria, Italy, Turkey and Siam cover small spaces. Japan and China appear in their special goods, imported largely from Birmingham and other English factories. The Central American States have exhibits of their products. Mexico will make a magnificent display, occupying 40,000 square feet, and almost equaling all the other foreign exhibits. American goods occupy five-sixths of the main building.

The exhibition is managed by Director-General Edmund A. Burke, of the New Orleans Times-Democrat, State treasurer of Louisiana, who has temporarily abandoned his other occupations in journalism, politics and finance, to bring order out of the exhibition chaos. He labors bravely at his herculean task, appearing to be almost overwhelmed by the mass of work which ought to be cared for by assistants. He lives and sleeps in the main building, looking after all the details, great and small, and keeping a staff of shorthand writers and secretaries busy. There are commissioners from the various

of the grounds, covers some 20 acres and is called the "United States and State Building." In its center is the extensive Government display, much more complete in plan than that made at Philadelphia, and for which \$300,000 was voted. Each department makes a fine special exhibit—the Post-Office, State Department, Army, Navy, Agricultural Bureau, Patent Office, Lighthouse Board, Life Saving Service, Indian Bureau, Educational Bureau, Fish Commission, Smithsonian Institution, &c. Around it, occupying the remainder of the building, are the special exhibits of the various States and Territories, some making fine displays. The horticultural building is a well-arranged conservatory, covering nearly 3 acres, with a central surmounting pyramidal tower, and located amid the live-oak trees. Extensive out-door displays of plants are also being arranged in the grounds. The art gallery is a fire-proof building constructed by Pittsburgh builders at a cost of \$30,000. It covers 25,000 square feet, and has five skylights. Mexico has expended about \$200,000 on her display and has built an ornamental structure representing a Mexican hacienda—a quadrangle around an open court—covering about an acre. A detachment of Mexican troops will have their barracks here, while a fine band of 50 musicians accompanying them will play in a large iron pavilion adjoining the main building. There are several smaller structures. One will contain the sawmill exhibit, an important industry in this section, some 40 sawmills of different kinds being intended to be shown. Others are for cattle and horses. A special building in the form of a Greek cross is erected for the Furniture Association of Grand Rapids, Mich., in which they will make a display of house-furnishing goods and wood decorations, of which they ship large quantities to that region. The negro race also make a special display.

There are enormous quantities of coal, marble, timber, ores, iron, steel, grain and other products in the State displays, some of them being very artistically arranged in fine pavilions. There is also an elaborate natural-science exhibition, with zoological and geological specimens, occupying a broad gallery in the United States building. The exhibition managers are expecting a great number of visitors, but they have nothing like the population to draw from that was available at Philadelphia. New Orleans has about 220,000 population, largely French Creoles, but the neighboring country is very sparsely populated. The city is 800 to 1500 miles from the large Northern cities. There are few towns of any size within 200 miles distance. Considering the gigantic scale of preparation, there is some doubt whether the admission fee of 50 cents will pay the expenses and reimburse the Government loan.

What Changed Us from a Debtor to a Creditor Nation?—In a recent interview Hon. Horatio Seymour, ex-Governor of New York, the Democratic Presidential candidate in 1868, ascribed our favorable balance of trade to the reduction of tolls on the Erie



Iron in Modern Architecture.—Iron Portico on the Kemble Building, New York, Whitehall Street Front. Joseph M. Dunn, Architect.

by a riveted plate to serve as an abacus; in their place we have fluted shafts, often lightly ornamented with figures in bas relief, or rich paneled sides for square columns, with tastefully designed capitals, particularly in grouped leaf forms in which projecting edges and deep sinkings contrast with convex forms, grace and lightness being the chief characteristics aimed at.

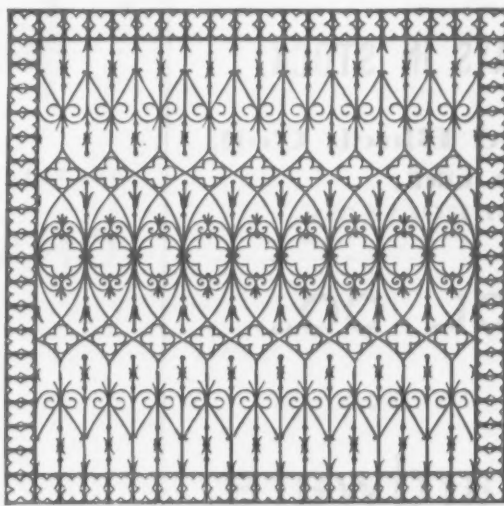
The increasing costliness of other building materials has somewhat favored the use of iron, but it owes still more to the scale on which business structures and apartment houses are now erected, necessitating strong supports. Although iron is not strictly fire-proof, the incasing of pillars and other structural portions of a building with fire-brick or terra-cotta tiles assures, as far as this provision goes, comparative immunity from destruction by fire or heat. The spanning of ceilings with iron girders that protrude so as to panel the surface, dividing the ceiling from side to side, is made to produce bold and fine effects, color and moldings lending their aid. A striking instance of this treatment is in the principal room of the Mutual Life Insurance building, this city. The iron pillars that support the girders, and which are surrounded by fire-brick, and which are coated with scagliola, and, with their gilded capitals, present a striking architectural feature. The fashion that set in many years since for iron fronts and cornices to Broad-

way of a facade, with projected spear-like or twisted stems, some of which bear on their extremities conventionalized flowers. Iron balconies, though by no means so generally introduced into facades as in former times, are now more decidedly ornamental, showing in their general forms contrasts of curvilinear and straight lines, and leaf and flower decorations. What may be affirmed of other building materials holds good in iron architecture, namely, that, if proportions are good and the evidences of thought can be traced through the design, the effect will be generally pleasing and satisfactory. A certain amount of symmetry and refinement is indispensable. A design and a construction that proclaim the fact that the mechanical has overruled the artistic elements can never be productive of that expression of beauty which is the aim of architectural art.

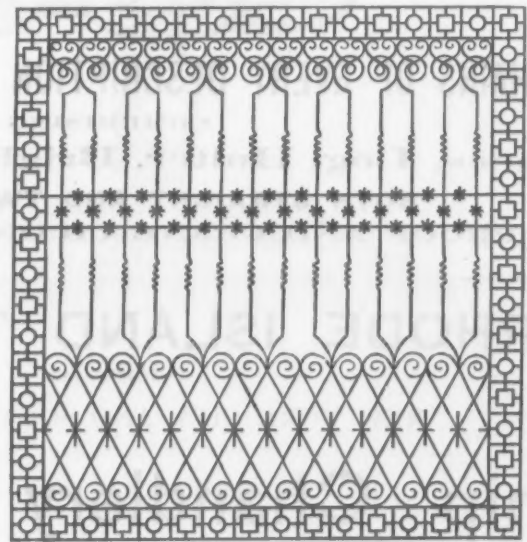
In these general remarks concerning the present use of iron in architecture we have not stopped to distinguish between cast iron and wrought iron, nor between the productions of the smith and those of the sheet-metal worker. All varieties of ironwork at the present time are made in better style and of higher quality, to say nothing of artistic excellence, than ever before. The limitations as well as the utility of each variety of the material are known and realized, and it is seldom in the best modern

above them, in which the name occurs, are of terra-cotta. The gate is of iron, which has been wrought in such a manner, and so twisted and combined at the hands of modern designers and mechanics, that those ancient art workmen to whom the teachers are wont to go for their choicest examples might well turn in their graves with envy.

Our subject is a large one. To go into it analytically and to illustrate it step by step would require a series of volumes rather than the space of a newspaper article. The most we are able to do is to present an outline, with a few reflections that the different allusions suggest. Our illustrations are characteristic, and yet they have no very special bearing on any particular portion of our remarks. An iron portico which has been re-



Window Guards in One of the Vanderbilt Residences Fifth Avenue, New York. Jno. B. Snook, Architect.



cently erected on the Whitehall street front of what is known as the Kemble building, in this city is shown herewith. It illustrates the utility of cast-iron work, where no other material is employed in combination with it, in a very satisfactory manner. The pilth on which the columns stand are of stone, while all above is of iron. The forms which the architect has employed are well adapted to the material used, and yet they are so similar to those heretofore used in stone that the mind of the observer is not impressed with a striking innovation. The general effect has been greatly enhanced by judicious painting and color effects.

We show also some window guards used in one of the celebrated Vanderbilt residences, in this city. Work of this kind is very commonly done in cast iron, but in this instance wrought iron has been employed, and the workmanship is so fine that it may be termed artistic. The most painstaking care has been expended on all the details of this work, which, from its character, can be but poorly indicated in so small engravings. In the final finish the parts have been painted and bronzed, receiving at the hands of the decorator a treatment entirely appropriate to the material, and one which, at the same time, increases the real beauty of the work.

The entrance to the Washington building, this city, illustrates the tendency displayed by some designers to introduce the grotesque and the mythological into modern architecture. The work shown well illustrates, too, the ready adaptability of the material we are considering to various forms. The lamp posts and the lanterns are of iron, and alone would not be much out of the commonplace. The scrolls forming the balustrade to the steps are also of not unusual forms, but when their convolutions are traced and they are found to merge into the dragon which is vainly biting at the column

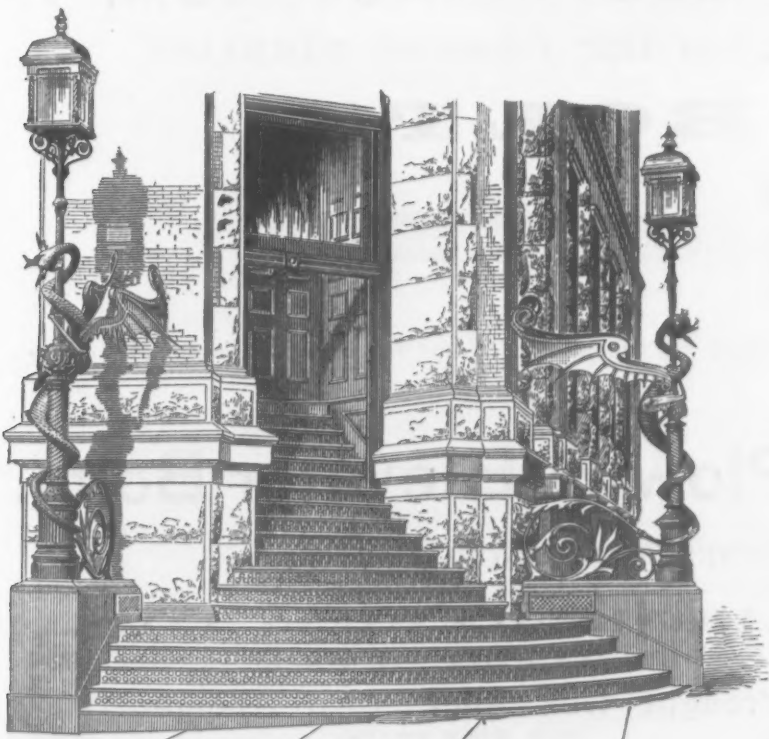
States of the Union and foreign countries, which attend to their special sections. The chief premiums offered exhibitors are \$30,000 in the agricultural and live-stock departments, \$32,000 in the horticultural department, and special premiums, medals, diplomas, &c., as at previous world's fairs. The display made is mainly agricultural and mineral, with an extensive machinery department, and also large amounts of American manufactured goods. About \$2,000,000 have been subscribed and advanced by the Government, and this seems to be already nearly all spent, although much work is yet incomplete. Additional funds will be required to finish the preparations. The exhibition has been planned on a scale of bigness intended to eclipse any predecessor. Five large buildings facing eastward toward the city constitute the chief part of the exhibition. With two or three exceptions there are none of the smaller structures that were so numerous and attractive at Philadelphia. Altogether there are about a dozen buildings exclusive of the entrance gates. In the center of the grounds is the main building, covering, with its annexes, about 33 acres, a light structure with skylights. The grand music hall occupies the center, seating 11,000 people, with a platform for 600 musicians and the great organ behind them. The western one-third of the building, with two large annexes beyond, is devoted to the machinery. There are 2 miles of shafting arranged to be driven by 20 steam engines of 4500 aggregate horsepower. Electric lights illuminate the buildings, and powerful are lights are displayed from tall towers in the grounds.

The original intention appears to have been to confine the exhibition to the main building, but the excessive demands for space necessitated another large structure, which is located in the northeastern portion

Canal. He said: "From 1866 to 1875 the balance of trade against the country was \$800,000,000. The result was great embarrassment and disastrous failures. In 1876 the reduction of canal tolls and the consequent reduction of railroad freights turned the balance of trade in our favor, so that in eight years, from 1876 to 1883, the balance of trade was in our favor more than \$1,300,000,000. This change was brought about by cutting down the cost of canal transportation, and the reductions were followed by the railroads, with the following result: The cost of carrying a bushel of grain from Chicago by lake and canal in 1868 was more than 25 cents; by all rail it was more than 42 cents. In 1882 the cost of carrying a bushel of grain to the same distance by lake and canal was between 8 and 9 cents; by all rail it was about 14 cents. These reductions enabled us to export our grain and provisions, and gave to the whole country wonderful prosperity." This is a decidedly new explanation of the great change in our foreign trade.

The ocean steamships continue to "beat the record," the Cunard Line steamer Oregon, Captain McMillan, from New York December 17 for Queenstown and Liverpool, having arrived off Fastnet at 7 p. m., on the 23d ult. Her corrected time of passage is 6 days 6 hours and 52 minutes, which beats her own record and is the quickest passage yet made.

The commercial exchanges of New Orleans, in joint meeting, have thrown overboard the Spanish-American treaty quite as summarily as the New York Chamber of Commerce, and their Senators and Representatives in Congress are instructed to spare no effort to defeat it.



Entrance to Washington Building, Broadway and Battery Place, New York. Edward H. Kendall, Architect.

way stores led to much meretricious work, including in many instances an excess of ornamentation in moldings of an elaborate description, but instances now abound of consistent and genuine styles of treatment of store fronts. When iron fronts first came in, in response to a public demand, architects were at a loss how to deal with the material, and had to place themselves very much in the hands of founders, and by no stretch of artistic courtesy could much of the molding then lavished on friezes, pilasters, panels and cornices be designated as ornamental. All this is at present very happily changed. Iron is now understood by architects and founders alike, and results are being produced which will stand the severest scrutiny.

work that we find parts made in cast iron that would have been better done if executed in wrought iron, nor do we so frequently of late as formerly find light sheet iron used where a shell of cast iron would be better. There seems to be judicious discrimination exercised by modern architects, and the several varieties of the material are combined and used in a way to obtain the very best results in all respects. Not only is it true that wrought and cast iron are combined for the purpose of obtaining the best construction and the finest effect, but it is also to be observed that terra-cotta is now used in combination with ironwork in a way to produce effects and secure a character of construction that would be impossible to ob-

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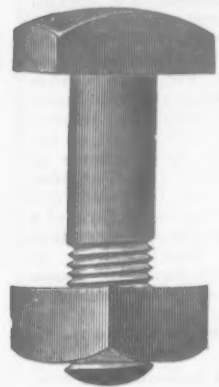
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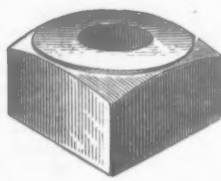
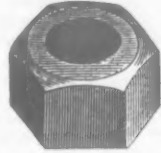


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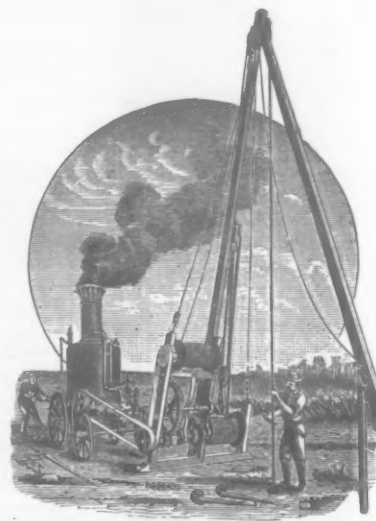
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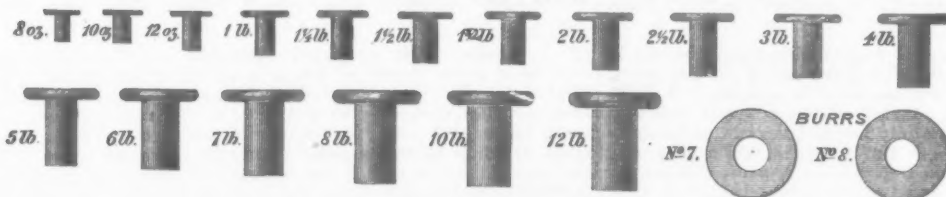
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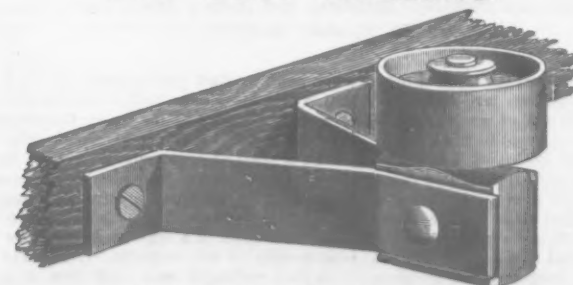
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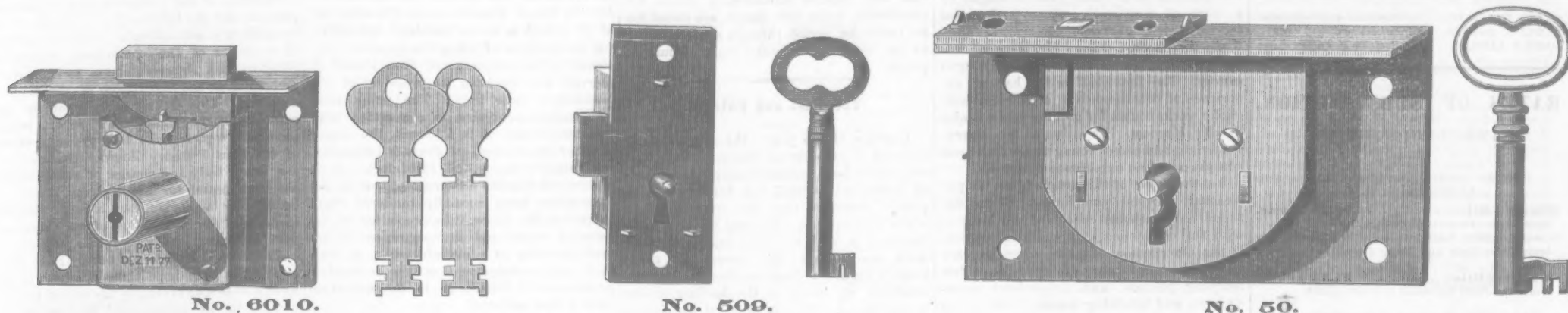
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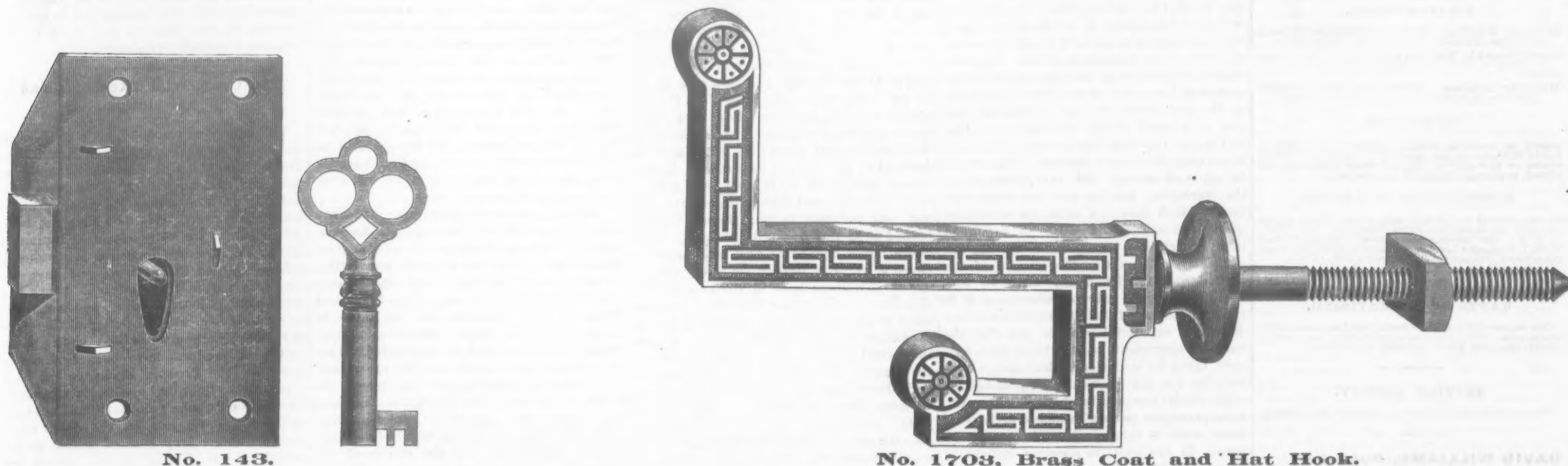
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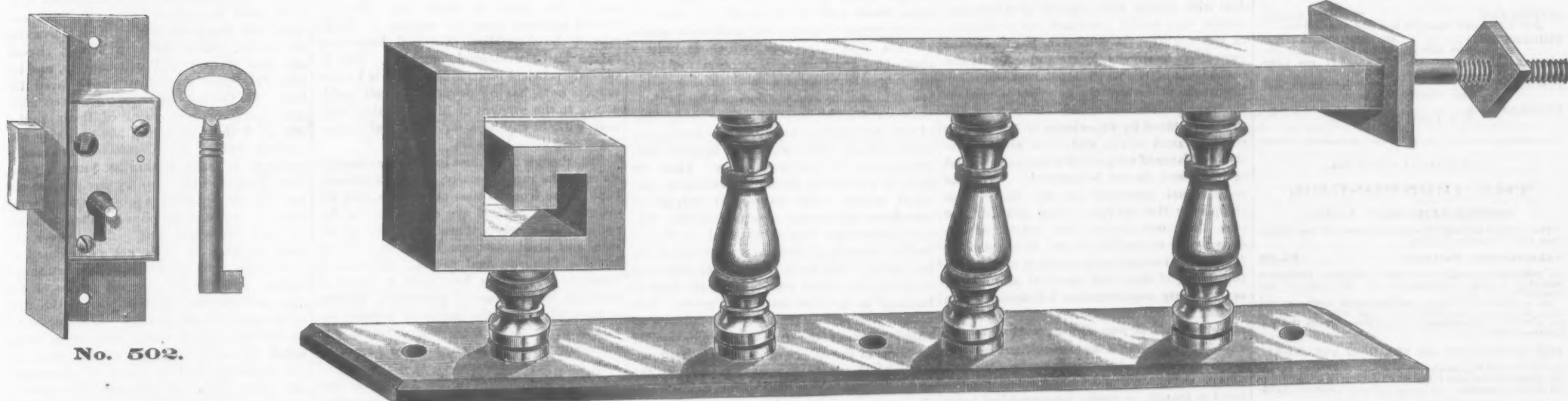
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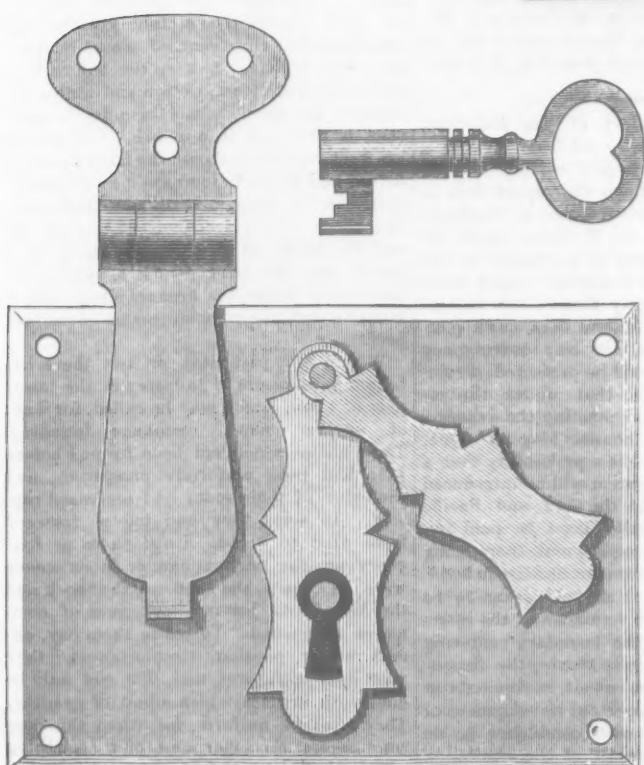
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The Nicaragua Canal Survey.

The United States Government is now engaged in a resurvey of the Isthmus of Nicaragua, and has put the work of revising the location and estimates of the proposed transisthmian ship canal under the direction of Mr. Aniceto G. Menocal. When we remember the way in which other enterprises of this kind have been undertaken, our faith in the Nicaragua Canal project becomes absolute conviction. Lesseps had no Mr. Menocal to send to Panama, so he organized a staff of French engineers to do the field work, and afterward called a congress of engineers to decide upon the route of the Panama Canal. After that he committed the work to a staff of engineers experienced in great public works, and especially in canal construction. Captain Eads had no Mr. Menocal to help him, so he sent to Tehuantepec the chief engineer of the great Dutch ship canal, and a staff of superior assistants, all experts in one department or another of constructive engineering. The United States Government is under no such costly necessity. It has Mr. Menocal, who is considered competent to undertake the Nicaragua Canal single-handed. That gentleman was graduated from the Rensselaer Polytechnic Institute in 1863. Like many other great men, he did not particularly distinguish himself in college for brilliancy. With prophetic foresight he saved himself for the great work before him. After graduation he returned to his home in Cuba, but, finding no satisfactory employment there, his unerring instinct led him back to the United States. Here he obtained employment in a subordinate capacity in the Croton Aqueduct Department, in New York. It was probably in this position that he learned so much about

ship canals, for he was appointed from there to the office of chief engineer of the expedition under command of Admiral Ammen, to survey the Isthmus of Nicaragua for a ship canal. After the return of that expedition Mr. Menocal was appointed one of the civil engineers attached to the Navy Department. The work of such officers is to drive an occasional pile, look after sidewalks in the navy yards and keep the officers' houses in repair. The position is not one which commands a large salary, and is sought by a class of gentlemen whose professional services have no particular commercial value. From this modest station Mr. Menocal was appointed to direct the present Nicaragua survey. The fact that he has had no experience of consequence in connection with public works counts for nothing with a genius like Mr. Menocal. His assistant, Mr. Peary, is a bright and clever young man with a good education and no experience whatever.

But the object of this article is not to pay pleasant personal compliments to the distinguished gentlemen who have been honored with the confidence of the Administration. If the Government is taking a serious view of the Nicaragua Canal scheme, with its far-reaching political and commercial consequences, and involving financial obligations amounting to many millions of dollars, it may be well to call attention to the fact that sufficient knowledge is not in possession of the Government to make it possible to count the cost or base intelligent action. It is true that the Government, through the Navy Department, has gone to considerable expense in the past surveying and estimating the cost of a canal at the Nicaragua crossing, and is now repeating the process with a view to revising the former surveys. This would be all well enough did the personnel of the surveying parties and the influences under which they act have the necessary qualifications for the work to commend their conclusions and estimates to the confidence of capital or the citizens of the United States, who finally have to foot the bills. In all private enterprises it is generally supposed that the conditions precedent to a successful outcome are that the various departments should be in charge of men fitted by experience, knowledge and training for the particular responsibilities with which they may be charged. Why the same principles cannot be applied to Government work is incomprehensible, to say the least. In the case in question, instead of availing itself of the experienced engineering talent of the country, accustomed to deal with affairs and capable of producing results that would command the confidence of the country, it selects a purely naval expedition to survey, locate and estimate the cost of one of the most stupendous engineering works of modern times. Not a man on the past expedition or the one now on the ground is fitted by experience or training to perform such work, and it is about time that the force of such an ill-conceived method of procedure should be exposed. We make no personal comment on the individuals composing the survey. They must do the best they can under the orders of the department controlling them. It is not their fault if their experience has been confined to the sailing of ships and nautical astronomy, or the petty requirements belonging to the duties of civil engineers attached to the navy yards. It was all very well while the canal project was a mere sentiment to send such gentlemen to examine the country, where the staff could practice running the level or transit, or make topographical notes the accuracy of which was not of much importance. But to depend upon such men and such work to determine the location of a great ship canal, with its stupendous constructive features, involving the ripest engineering wisdom and experience, does seem the height of Governmental folly. There is no amount of book knowledge or cramming that will qualify a man to have responsible charge of work, and it is no other knowledge than this that the naval establishment can possibly have. What opportunity can an admiral or a commander or a navy-yard engineer have for experience in matters outside of and beyond the calling of their life? It is unfair to them to put the responsibility of the canal survey on their shoulders. As well criticize a tailor in his attempt to make a pair of shoes. We have no quarrel with these naval gentlemen. They have our full respect in their place. Our criticism and protest is against the system of a department either too short-sighted, too ignorant or too full of an inflated importance of its own officialism to conduct a business scheme on business methods. Whatever else Congress will do in the matter of the Nicaragua treaty, we hope and trust that it will put its foot down on this new naval expedition, and proceed in a business-like way to get such information of the Nicaraguan problem as will enable it to come to sound conclusions. The time has arrived for accurate work, and this can only be attained by a civil expedition made up of the best talent the country affords, drawn particularly from that class of civil engineers whose experience in public works has been of the broadest kind, whose names command confidence at their very mention, and whose conclusions would be universally accepted as absolute and final.

For the first time in the history of the American Bessemer steel industry all the large steel works are closed but three, and part of these are running half-time only. The condition of the steel-rail industry was never

so depressed as it now is. In 1873-79, when general business was very dull, the production kept steadily growing at the expense of the iron-rail trade. Now, however, the whole iron-rail trade has been captured, the steel-rail companies have a producing capacity greater than the needs of the country, and stoppages or part-time running are the order of the day. Some of the works now idle have only shut down until after the holidays, but others will make extensive repairs that will require considerably longer for completion, while still others are closed for an indefinite period through sheer inability to get work or to make rails at current prices.

The Past and Future.

A review of the year 1884 will not show a record of commercial disaster. It is true there have been extraordinary vicissitudes of individual fortune, but there is indisputable evidence that the country as a whole is prospering. Colossal fortunes have vanished in Wall street as rapidly as they were made, but the cause of these losses is readily understood when the present condition of many of the leading stocks is considered. For example, of the Gould securities, Western Union sold at the beginning of the year at 74½; it sold down to 49 on May 14 and last week at 57½; Wabash opened at 17½ and now is quoted at 5½; Union Pacific opened the year with 74½, sold at 28 on June 30, and now sells at 48. Of the Vanderbilt stocks, New York Central opened at 112½, and now sells at 86½; Lake Shore opened at 98½, and now sells at 63½; Michigan Central opened at 89½, and has declined to 56. Of the coal stocks, Lackawanna opened at 117½, and now sells at 96½; Delaware and Hudson opened at 105½, and has declined to 79; Jersey Central opened at 84 and now sells at 44½. West Shore bonds opened at 67½ and have declined to 41. But, despite the heavy shrinkage of valuations both in stocks and merchandise, it will appear that the aggregate value of transactions as represented by the exchanges in our leading cities surpasses the record of 1880. In the productions of the country, also, whether manufactured or agricultural, there is an enormous increase. Of grain there is almost no limit to the yield. The wheat crop of 520,000,000 bushels—100,000,000 larger than that of 1883—is supplemented by 1,800,000,000 bushels of corn, surpassing all precedent. Again, although many of our large establishments using steam coal are less active than before, the aggregate output of our anthracite mines exceeds 30,000,000 tons, which is only a shade less than the consumption for 1883, the largest ever known—and this, notwithstanding the increasing demand for bituminous coal for like purposes. The production of pig iron is also heavy, but considerably below that of 1883—according to some estimates about 17 per cent. below. Then we have to add to the annual accretion of material wealth some 26,500,000 barrels of petroleum, an amount rarely exceeded. Annual statements coming to hand from our leading cities in all sections are unexpectedly favorable. The main difficulty experienced seems to have been not so much the lack of business as the low margin of profit. The competition arising from superabundance no longer permits the rapid accumulation of fortunes in the sphere of legitimate business. But with the coming revival of activity the excessive production will soon disappear and the normal relations between supply and demand be restored.

We should endure the present unsatisfactory condition of business with patience, knowing that it cannot possibly continue much longer, and we should look forward to the future with hope, not taking counsel of our fears, but trusting rather to the inspiration of cheerful prophets, such as Mr. Henry Clews, the banker. "We shall soon," he says, "enter upon the new year and under favorable auspices, produced by cheap food, cheap clothing, cheap money, cheap stocks, cheap passenger fares, cheap freights, cheaper coal, cheaper labor, and with the prospects of cheaper rents and cheaper real estate, which, united, constitute a solid basis for real prosperity in a country abounding in inexhaustible natural resources. Hence hope should now take the place of doubt, and by the world-renowned enterprise of our people we will soon get out of the present gloomy rut, and an enduring prosperity will again reign throughout our land."

To the same effect is a statement from President Parker, of the Produce Exchange, who says: "I believe that very soon our export trade will show a vast increase. I should not be at all surprised if within the next 60 or 90 days a general advance in prices should take place, based upon the export demand. I think so because, in my opinion, foreign countries have been consuming their own productions very freely. They must sooner or later exhaust their stores. Then they will be forced to call upon us to replenish their market."

In the West an early improvement in the transportation business is confidently expected as a consequence of an increasing export demand for grain and flour, and quite a number of the leading merchants and manufacturers of Chicago, who have expressed their views on the subject, concur in the belief that bottom prices have been touched. However this may be, it is at least satisfactory to know that, so far from yielding to a spirit of depression and hope-

lessness, there is a widely prevalent belief that the "good time coming" will not be long delayed.

The American Iron and Steel Association.

A meeting of the Board of Managers of the American Iron and Steel Association has been called by the Executive Committee, to take place at the office of the association, No. 261 South Fourth street, Philadelphia, at 11 o'clock a. m. on Tuesday, January 6, for the purpose of filling the vacancy occasioned by the resignation of Hon. Daniel J. Morrell, who has been the president of the association since 1879. The name most prominently mentioned in connection with the office is that of B. F. Jones, the senior member of the firm of Jones & Laughlins, iron manufacturers, of Pittsburgh. It is understood that the Eastern members of the association have cordially tendered their support to Mr. Jones, in appreciation of his personal worth and in recognition of his high standing as a manufacturer, as well as in acknowledgement of the increasing prominence of Pittsburgh in the manufacture of iron and steel.

If Mr. Jones is elected to the presidency of the association, of which there now seems to be absolute certainty, it will be the first time that Pittsburgh has been thus honored since the formation of the present organization, which took place in 1864. The late Capt. E. B. Ward, of Detroit, was the first president. In 1869 he resigned, and the late Samuel J. Reeves, of Phoenixville, Pa., was elected his successor. Mr. Reeves died in office on December 15, 1878, and on March 6, 1879, Mr. Morrell was chosen by his associates to fill the vacant chair.

Although the three gentlemen who have thus far presided over the National Association of American Iron and Steel Manufacturers have been men of great popularity, of commanding ability, of exceptional success as manufacturers, and even of national fame, the new president will not suffer in comparison with them. Mr. Jones's popularity in the iron trade is unbounded. This is shown by his selection for the presidency of numerous organizations in which he takes an interest. He belongs to the class of "universal" presidents or chairmen. His ability is shown in his wonderfully successful management of the affairs of his great firm, which has advanced from humble beginnings to a very prominent position among the giants of these days. He has earned national fame by serving as chairman of the Republican National Committee in the late Presidential campaign. This is the only political position Mr. Jones is known to have held, having devoted himself assiduously to the conduct of his increasing business, without ambition for individual preferment or political honors.

But, though Mr. Jones has been content to serve in the ranks usually, he has invariably been in the front in time of trouble, and his presence and counsel are always to be depended upon when there is danger of the iron and steel interests being injured by adverse Congressional action. At such a juncture Mr. Jones has been a tower of strength to the cause of protection, looking as carefully after the safety of weaker interests as of those more important to him personally. The presidency of the American Iron and Steel Association is a position of sufficient prominence in the American iron trade to make it worthy of any manufacturer's ambition, but in the election of Mr. Jones as its president the association will do itself honor at the same time that it honors him.

Mr. Curtis, secretary of the American commission which returned from Mexico a few days ago and is now in New Orleans, outlines in a general way the report now in preparation to the Government at Washington. Their visit to the Mexican capital occurred at the moment of a change in the administration, and therefore might have been more fortunately timed; but the incoming President, General Diaz, gave positive assurances that in any contingency American capital would be protected. Promise was also given that under the international treaty now pending the exasperating custom-house abuses, long in vogue, shall cease, and there is a probability that a bonded-warehouse system will be introduced on the borders and at the Gulf and Pacific ports. At present duties must be paid immediately on every consignment, there being no provision for putting merchandise in bond. The tariff question, we are told, seems to be regarded as of little significance, the interest on both sides of the boundary centering rather in the reciprocity treaty, the disposition being simply to await movements in Washington. An important development of trade is looked for with confidence in no small measure as a result of the exhibition in New Orleans, where the Mexican department and valuable contributions are a distinguishing feature. No effort will be spared to open by all possible means the channels for trade communication, both by railway and steamship lines.

A singular rumor, originating at Washington, finds its way into the daily press. It appears that the joint commission of Congress, appointed at the close of the last session to visit various cities and take testimony relative to the manufacture of steel guns for the use of the Government, has not

yet begun the preparation of a report. This is not the rumor to which we refer. There is nothing singular about the postponement of work by officers of the Government, particularly elective officers, such as Members of Congress. But it is further said that "in all probability no report will be made." If this statement is based on a knowledge of the facts, the work of the committee comes to a very curious conclusion. But, if there is to be no report, why not? The answer is that at no meeting of the committee was a quorum present, and the information obtained, while valuable, was not sufficient, in the estimation of members of the committee, to enable Senators and Representatives to form such an opinion as the importance of the subject demands. This is very unfortunate in one respect, as the committee's report might have been a powerful aid to the suggestions of the Gun Foundry Board. Inasmuch as the latter body had charge of substantially the same matter for investigation, it will not be entirely neglected, but a more striking instance of the indifference of our Congressmen regarding the momentous subject of national armament could hardly have been conceived. We hope their apathy will not have a rude awakening by the roar of foreign cannon in the unprotected harbors of our large cities, but that long before that time comes they will rouse themselves to the necessities of the situation and yield to the dictates of ordinary prudence.

The Commercial Exchanges and Speculation.

The past year has not been a prosperous one at the various exchanges of New York. The dullness of business has checked speculation, and modern trading associations cannot live without selling the same product many times over. This they have not been able to do to the same extent as formerly, for outside investors have had few enticing schemes placed before them, and have declined to put in their money. There has been little railroad building, and few roads have done a prosperous business, therefore the Stock Exchange has been weak; grain and pork products have been remarkably low, and the Produce Exchange has been compelled to limit its business to something like legitimate sales; the Maritime Exchange suffered a great loss in the death of its founder and a large sum of money by the failure of the Marine Bank; cotton has afforded few speculative features, and the Cotton Exchange has in consequence done little, and the other exchanges have suffered in the same way. The Mercantile Exchange, which deals in butter, cheese, eggs and country produce generally, and the two Petroleum exchanges, have fared the best. On the rolls of these various societies are 16,000 brokers, most of them having offices of their own, and the majority employing clerks. If we estimate the average earnings of each broker at \$4000 a year, New York and the country pay \$64,000,000 annually simply to have property transferred from the seller to the buyer. This does not embrace the whole field. There are many other brokers in lines not represented on exchanges, such as, for instance, drugs and leather, and the two largest trades of the city are without meeting places—the dry-goods men and the grocers. It is impossible to tell exactly how much business is transacted by each body, for all the sales are not reported, and in times of excitement the proportion of private transactions rapidly increases. The secretary of one of these exchanges a few months ago remarked that 1 per cent. of actual transactions was sufficient to keep the ball rolling, and in the Petroleum, Cotton and Coffee exchanges the quantity sold in a day is more than is produced in a month. The wheels are kept moving by those who have saved up money and desire to increase it more rapidly than can be done in legitimate trade, but, like those who place their money on the roulette tables at the German spas, it is found that the bank nearly always wins. The money keeps the brokers going, and it is rarely that the outsider makes a decided profit.

Within the past year or two there has been a new species of industry in the lower part of town, which may be called, for want of another name, exchange founding. Those bodies which had been formed before 1882 had been uniformly prosperous, and the value of their seats had increased rapidly. In some they had moved forward from \$100 to \$1000. Until three or four years ago the only exchanges in existence were the Cotton, the Produce, the Stock and the Mercantile, leaving vast lines of commerce untouched. To make them pay, except under peculiar circumstances, they must deal in futures, and that can only be done with articles which admit of grading. They must be uniform, for when the contract expires the seller must offer something which shall be satisfactory to the buyer, although neither one had seen the goods before. Coffee can be easily handled in this way, and so can grain, but there is a difficulty in doing it with lumber or with tinware. The field was surveyed, the projectors determined that particular trades would yield enough business to warrant a foundation, and they either canvassed all the leading houses or opened an office at which business men could call. Seats were placed in the beginning at, say, \$100. The first hundred members would come in at this, the second hundred paying \$250 and the third hundred \$500 each. The first hundred

would be very quickly taken, for the purchasers could immediately sell out at \$250 if they did not care to remain, and if there was any briskness in the call those at \$250 also were taken in the same way, hoping for a rise to \$500. But after an advance for a while the seats became stationary, and then fell. Those in the Importers' and Grocers', the Metal, the Hay and Produce, can now be obtained for a fraction of their original cost. One great reason is that there is only a certain amount of gambling to be done in merchandise in this city, which depends largely upon the surplus funds of the community. If there are a couple of speculative exchanges, they get a large part of it; if there are a dozen, they get no more. But the expense of the establishment must be kept up, ranging from \$20,000 a year to \$100,000. The members become tired of paying assessments, and sell out for whatever they can get. Another drawback to the multiplication of exchanges is that they destroy each other. There is a value in having a common place of meeting, where all in the trade can see each other at a certain hour in the day, but if the merchant is a member of four or five organizations he may be at the Petroleum Exchange when he should be at the Coffee Exchange, or at the Cotton when he should be at the Maritime. The exchanges of the Old World are usually meeting places; they rarely have speculative features in addition.

Among these institutions in New York the Stock Exchange is the wealthiest and most formidable. It is also the oldest of those in which anything is bought and sold, although not having the antiquity it claims for itself. On the wall of the exchange is an inscription stating that the board was organized in 1792, an assertion difficult of belief when it is known that there were but two banks here at that time—the Bank of New York and the Branch Bank of the United States. There was no railroad stock to deal in, nor any canal shares. None of the present usual forms of indebtedness of companies existed, for there were very few incorporated companies in the country. All that was possible to be handled was the State and national debts. This could not have afforded much work, for 45 years after there were but 37 members of the Stock Exchange. Its origin really was in 1825, when the Merchants' Exchange afforded them a shelter. Since that time they have met in a barn, over a store and under a tree. Their influence and power was very slight until the war, which gave ready money a prodigious opportunity for speculation. Since that time a seat in the board has been a most valuable property. It was estimated a couple of years ago at \$33,000, and some seats were sold at that rate. The present value, however, is far less, being named at from \$23,000 to \$25,000. There are 1099 members and one vacancy. According to this, the total value of the memberships would be from \$26,000,000 to \$27,000,000. It is impossible to estimate what amount of capital is used in carrying on business, but it is probable it is on the average of more than double the value of the seats. This would make on the whole in the neighborhood of \$100,000,000. Many of the most important brokers are rarely seen on the floor, transacting through younger and more active men, but there are from 500 to 600 active members. To give greater accommodations to them, a committee was appointed early in the year to consider the question of a new site and to invite proposals. Ground was offered them in several localities, but no new location was accepted, and it was finally discovered that the exchange had no intention of removing, but had simply adopted this procedure for the purpose of intimidating owners of adjoining property into giving them cheaper rents. They may have had some idea, in the beginning, of change, but when they saw that they could only remove themselves, but that the banks, the Custom House, the Sub-Treasury, the Assay Office, the oil companies, the express companies and the private bankers would remain where they were, they thought better of it, and concluded to remain. There was, besides, the possibility that another exchange might be formed which would divide their business. One profitable result to their agitation was that the proprietors of the Mortimer Building, a very old-fashioned structure on the corner of Wall and New streets, have demolished it, and are erecting on its site a gigantic edifice which will give great facilities to the brokers, and, in fact, will be an extension of the exchange, to which it is next door. The board now proposes to enlarge the great hall and make it extend from New street to Broad, doing away with the present reading-room. No statement of the business of any year can be obtained from the exchange, as this is kept strictly to themselves, or rather to the Governing Committee. None of the members are apprised of the status of the body, and if any information is vouchsafed it is as a matter of grace. All the powers of the exchange are vested in the committee, who are elected once a year, and sit with closed doors. Their power is absolute. A member can be expelled or fined by them, and he has no recourse. They hold regular meetings once a month, except in the summer time, at which they list new stocks, and do any other business. They receive no compensation. Sales are made on the basis of 100 shares, these usually representing \$100 each. A very small day's sales is 100,000, while a very large one is 500,000 shares, the average running from 200,000 to 250,000 shares. This would be at par

value \$25,000,000 per day, or in a year \$7,500,000,000. This is more than twice the national debt, half again as much as the value of the railroads of the country, and four times the amount of the foreign commerce of the United States, both inward and outward. It is needless to say that if there were actual, bona fide transfers of property from a selling broker to a buying broker, each representing a principal who invested in this line, it would be twenty times more than truth. A broker only requires five customers to make a profitable business, an old veteran states. Each one will pay at least \$1000 a year commissions.

Two of the newest of the exchanges are the Coffee and the Importers' and Grocers'. To a great extent they have the same membership, and their rooms are across the street from each other. The Coffee Exchange is the oldest, and deals only in the commodity described by its name. For some unknown reason it began trading when the price of the bean was low, but the market value soon began to increase, and the volume of trading of the exchange augmented until toward the beginning of the present year the sales of a month were more than they were in the beginning in a whole year. This highly speculative feature continued until the early spring, when the boom collapsed, the price of coffee went down, and the amount of business rapidly diminished. While there has been a slight recovery, the year's business has, on the whole, been a bad one. The membership of the exchange now numbers 311, all the large firms, excepting one, belonging to it. That one has obstinately held out, believing that the exchange movement was not a healthy one. It is instructive to see at what rates the members entered the exchange. The first 113 paid \$250; 99 came in at \$500, and 100 at \$1000. A seat is now worth about \$570. The total amount received by the exchange from the sale of memberships is \$177,500, out of which \$160,000 is invested. The expenses are about \$26,000; the income from investments is \$8000, and from dues about \$18,000, the members being taxed about \$60 each. The sales are chiefly in futures.

The Importers' and Grocers' Exchange was established differently from all the other organizations of the kind. It was begun within the trade by the strongest houses; its plans were matured with great care, and great pains were taken that the original membership should be confined to well-to-do houses with excellent character. It opened with a flourish of trumpets on the 23d of November, 1883, and the sales of sugar and tea were for a while very large. The price of tea was steadily enhanced until in the spring, when a couple of disastrous failures not chargeable to the exchange or to its methods destroyed confidence in that branch, as the wretched condition of Cuba did the sugar market. The immense growth of beet-root sugar in Germany and France has taken away a large portion of the West Indian market, while the slovenly agriculture and the gross mismanagement of the Government of the Queen of the Antilles have placed the planters there in a position in which their crops cost more to grow than they can sell them for. Sugar is now lower than ever before known. The result of this has been to destroy all trading in this commodity at the exchange, except such as is needed day by day, and experience shows that no body of this kind, dealing in articles of which the value consumed is less than \$500,000,000 a year, can be sustained. A movement has, therefore, been begun for a consolidation of this exchange with the Coffee Exchange, to which it naturally is allied, but does not apparently meet with much favor from the coffee brokers, although the Importers' and Grocers' Exchange has far wealthier members.

The Mercantile Exchange is perhaps the only one in the city whose memberships have increased in price during the last year. They were bought originally at from \$50 and \$100 up to \$250, but are now worth on the street about \$300, although if obtained from the exchange they are charged at the rate of \$500. The present number of members is 801, of whom 70 were admitted during the last year. The business of this trading body is dealing in butter, cheese, eggs, dried fruit and other country commodities, being chiefly those which must soon be consumed. It does not handle grain, pork or lard, and does not enter into conflict with the Produce Exchange, although it deals in somewhat the same class of goods. Business has been prosperous with them this year, and at meetings held in the beginning they determined to erect a building especially for their own use, at the corner of Harrison and Hudson streets, where they have purchased four lots at a cost of \$125,000. These are paid for, and they have borrowed \$175,000 to proceed in the erection of their edifice, of which the corner-stone was laid a few weeks ago. It will be nearly square, containing on the main floor a large hall, on the ground floor stores, which are already let, and on the upper stories offices. Little has occurred to them out of the usual routine, except being compelled to meet for several weeks at an inconvenience, occasioned by fire in their rooms on the 18th of February. The walls and floors were not destroyed, and the apartments were renovated by the middle of May. This exchange has a gratuity fund derived from assessment upon the members at each death. The assessment is \$3, but no greater amount can be accumulated than \$3600.

The sum that each estate receives is now \$1242.60.

There are two petroleum exchanges. The one at 18 Broadway is known as the New York Petroleum Exchange and Stock Board, the latter part of the title being added this year. Dealings in petroleum have been carried on for seven years by them. There are 1004 members. No exchanges, perhaps, in the city, carry on so large a trade on so small a capital as the two petroleum exchanges. The clearances at this one alone amounted in the year ending on the last of November to 2,609,490,000, or far more in each month than the wells yield in a year. The other New York exchange does nearly as much, and there are several other exchanges out in the oil regions, so that the petroleum product is most wonderfully extended before it passes through the brokers' hands. The stock department was added on the 22d of September last, and has proved a success. The Stock Exchange will not deal in lots less than 100 shares. This body handles them in lots of 10 shares, or their multiple, and the average has been 22,920 shares daily, or an eighth of the business of the other exchange. The clearing is done on the London plan. The membership is limited to 2000. The amount of balance in the general fund on the 20th of December was \$69,182.87; in the building fund, \$55,000, and in the gratuity fund \$14,220, being a total of \$138,402.87. The exchange has no liabilities. The amount to be paid to the family of each deceased member is \$8000, the assessment being \$10. Four deaths have occurred since May 19, 1883. The yearly dues are \$25. It is proposed to erect a large and magnificent building, costing, with the ground, from \$1,200,000 to \$1,500,000, but the plans are not yet perfected. Seats are now sold by the exchange at \$500, but are held in the street at much less. The other petroleum exchange is entitled the National Petroleum and Mining Stock Exchange. Besides petroleum it handles stocks not on the list of the Stock Exchange. It has been until lately the more active of the two exchanges, having fewer persons conversant with the oil wells, but more disposed to stake their money on the uncertainties of the future. It has a large gratuity fund, and much money saved up.

The Maritime Exchange is the only one formed upon the plans known to merchants of Amsterdam and of London 100 years ago. It is a meeting place and place of getting news only. The association has agents all over the globe to gather news about ships, and every day receives enough startling news to fill a dozen novels. Published in the summary form they finally reach, they scarcely attract attention. The president, Mr. C. Frederick Elwell, is in his sixth year of service, but will retire this year. The superintendent, Mr. Houghton, has been there for many years, and among its employees are men speaking nearly all the languages of the globe. The membership is about 1100, seats now being worth about \$100. The association had a reserved fund, of which it lost \$42,000 by the failure of the Marine Bank. Its heaviest loss, however, was that of its founder and late superintendent, Mr. John C. Smith. The enterprise was originally begun by him, more than 20 years ago, on the sale of the *Courier and Enquirer*, of which he was the ship-news reporter. The expenses of the exchange are about \$70,000 per annum.

The Cotton Exchange has been in existence since about the close of the war, and during most of that time has done a profitable business. This year, however, has been very flat. Trading has not been done near so freely as before, and outsiders could not be coaxed in. Many mills have preferred to buy their cotton direct from the South, instead of through the agency of brokers here, and say they have saved money by it. The chief subject of discussion with them has been the lowering of commissions, which has been up before them five or six times this year, and for authoritatively grading the spot receipts. They are occupied, also, in erecting a magnificent new building on the corner of Hanover Square and William street, which will cost nearly \$1,000,000. It will be completed about the 1st of May. It is of Milwaukee brick, and has three frontages. The great bulk of the money is raised upon mortgage, and it is doubtful in the minds of many whether the association has not rather overleaped itself, especially as the present rooms are large enough for any business they now find to do.

The Produce Exchange is the largest of the mercantile bodies, as the Stock Exchange is of the monetary ones. It moved on the 6th of May into its new building, which rests upon the top of 15,000 piles, and costs, with the ground, \$3,000,000. The edifice is the largest erected for mercantile purposes in the world, being a fifth of a mile in circuit, and having a single room within it that contains two-thirds of an acre of flooring. The financial exhibits of this body have been satisfactory considered as a corporation, but not as a number of traders. Business has been very light, the great quantity of Indian wheat going into England acting as a damper upon the grain trade here, and necessitating lower prices. Farmers have not been willing to sell at the low rates offered them, and speculators have not seen on which side they could make a profit. It was recorded that one day last summer, as a consequence of this, the actual dealings in grain were greater than the speculative. Such a thing had not before been known since the beginning of option trading there, about seven years ago. Indian corn, barley, oats and rye have sympathized with wheat. Pork, which was formerly very active, has been injured by the prohibition action of the French and German Governments, and of the small fry that surround them. Every commodity has been hampered, and the year has been most unsatisfactory. The gratuity fund is also a subject of solicitude. This is a life-insurance scheme by which the members pay a certain sum on the death of each member, whose family get therefrom a fixed sum. As in all beneficial societies, the

deaths at first are very light and the dues small. But in the course of years the hidden weaknesses of constitutions are revealed and the members drop away rapidly. This is the case there at the present time. Seven deaths lately happened in two weeks, each time the assessment going around. To belong to this fund is compulsory upon all persons who have become or shall become members since it was proposed, and, as medical examination is a prerequisite, it will be seen that it deprives of the chance of earning a living old, weak or unhealthy men. Many are also sufficiently insured elsewhere. A consideration of these facts induced the Maritime Exchange to reject any such plan when proposed to them a year ago.

The lesser exchanges are numerous. The Metal Exchange is the result of the union of two former exchanges in the same line. Soon after consolidation transactions in futures were introduced, but have not been successful, the sales being very small. In copper and tin there have been more sales than in iron. The exchange owns the building in which it carries on business. The Hay and Produce Exchange deals in fractional lots. Its hay business was formerly respectable, but has dwindled away since coming down town, and it has acquired no new business since to compensate for the deficiency. The Open Board of Trade is the successor of the Real Estate and Traders' Exchange, begun a year and a half ago as the place for small traders to meet. It is now a bucket-shop in reality. The Wine, Spirit and Distillers' Exchange does little business on call, and its capital has dwindled away to a few thousand dollars. The Electric, Miscellaneous and Manufacturing Exchange was designed as a place where stocks too unimportant to be put on the Stock Exchange list might be dealt in. It looks more active than the other bodies mentioned, and may succeed in living. The Tobacco and Naval Stores Exchange has a fair line of commodities to trade in, but business does not go there. All of the societies last mentioned are incorporated, with at least 300 members, and have spent much money in getting under way. According to the views of their founders, they ought each and all now to be paying. They are not, however; nearly the whole of them are in a moribund condition, and the first of May will see the closing of several of them. There exists no popular demand for dealings in futures, and those who wish to do it can be gratified in grain, pork and stocks. Some of these bodies will consolidate with each other, but that will only postpone the final day. On the whole, business at the exchanges has been very unsatisfactory this year.

The following press dispatch appears in recent issues of the daily papers:

A contract was recently made for carrying large quantities of pig iron from Pensacola to New York by ocean. This moves some of our Western contemporaries to the expression of the most profound sympathy for Eastern pig-iron makers. They say: "And now Florida pig iron is 'coming North to assist in the disturbance of the Eastern markets.' This is altogether too bad. We thought our local manufacturers were having their toes trodden on when Virginia pig iron appeared here; and when Tennessee, Georgia and Alabama iron came in quick succession it looked as though our Northeastern manufacturers would have to stand aside or be shoved over. But this appearance of Florida iron on the scene caps the climax and completes their discomfiture. As a pig-iron manufacturer Florida enters upon a new and untried career. Her orange groves supply us with luscious fruit at reasonable prices, her alligators furnish the leather manufacturer with the material for his most fashionable goods and her cigar-makers are known all over the country, but up to this time the world has been in ignorance of the capabilities of 'the land of flowers' in the pig-iron line. The furnace in which it is made must have been put up secretly and stealthily for fear of hostile demonstrations by the Lehigh Valley manufacturers whose trade was thus threatened with annihilation, for even to this day its whereabouts in the State of Florida are unknown. May it not be possible that to cover the manufacture of this pig iron the State line would have to be extended pretty well toward the northern part of Alabama?"

We have been informed that changes in the report on "A Standard Method of Steam Boiler Trials," a portion of which we printed in last week's issue, are contemplated by the committee having the matter in hand. We accordingly suspend publication of the report until we can obtain it in corrected form.

Future Policy of the Lake Superior Iron-Ore Companies.

The following article, which we take from the *Lshpeming Advertiser*, is worthy of careful perusal, coming, as it does, from a journal published in the heart of the old Marquette district of the Lake Superior region:

There have been numerous statements made by the press of this county, as well as by the trade journals throughout the East, that the output of ore from the Lake Superior region would be still further curtailed in 1885, giving as a reason for it that the companies would agree to limit the production in the hopes of bettering the iron business by causing a scarcity of the raw material. To one who has carefully noted the mode of operation on the part of many of the producers during several years past, we feel assured that a cure by such treatment of the difficulty will never be effected, for the reason, first, that the Lake Superior miners would never agree to cause such restriction, no more than would the producers of pig iron, and, secondly, if they did it would result to their injury, in that it would send manufacturers and mining men into the new fields, causing the opening and equipping of properties

that would prove lively competitors in furnishing supply in future. There is no use of endeavoring to conceal the fact that Southern ores are already cutting in upon the trade of Lake Superior companies. It must be conceded that the South has excellent ores, and the presence in the same fields of good coking coal is yet another point in its favor. Mr. Joseph Sellwood, of this city, has lately returned from a visit to several of the new fields, and we have it from him that the ore showings are immense, and nowhere in the world can iron be produced more cheaply. In Tennessee especially he found ore fields of great extent and richness, but yet unopened, but which, if they are, cannot but be strong rivals for the trade of this country. This fact is also known to many of the Michigan mining men, and that they will endeavor to shut all rivals out of the race for favor is a very natural course for them to pursue, and, we believe, is the proper one. But a restriction of product cannot accomplish this desired object. It would have just the opposite effect. As the matter now presents itself, it means the "survival of the fittest." Unlike the precious metals, the supply of iron ore is rapidly increasing. The past four years have witnessed a big change in the industry.

The immense profits reaped by the Lake Superior mines up to two years ago sent thousands of dollars into new fields in the hopes of harvesting profits as great as did the companies here. Every available mineral range was opened, and mines increased in number almost one half in three years. This could have but one effect—the increase in production and a decrease in values. Fabulous tales of the great wealth in ore of the Vermilion, Minn., and the Canadian field, yet to be opened up, and upon which the work of development was then going on, caused a still greater depression, until to-day the market is in a deplorable state. We do not look for higher prices, no matter what position the Lake companies take, and we do not look for any concerted action on their part. The local management understand this, and could they be left to carry out their wishes the new fields would molest the trade but little for years to come. The few big mines of the Menominee range seem to have grasped the situation, and are making contracts that, while they are low, they can fill at a reasonable profit. We believe that just such a course as this must be taken by the big mines of the Ishpeming district, and that to meet the cut in prices they will have to increase their production to a point to overcome the difference. This we believe they can do. Where a mine is now putting out 150,000 tons per annum, let it double that amount next season. There are none of the big mines here but can do this. A mine that is working at half its actual capacity in these times, it seems to us, is losing valuable time. Its surface expenses, engineers, firemen, mechanics, officers' salaries, interest on amount invested in the property and taxes on the same—an item of no small importance—go on just the same as if it were working full force. There are none of our big mines that cannot, by doubling their present production, decrease the cost of obtaining their ore fully one-third less than it is now costing them. It takes no novice to see that point. The restrictions of product have been made in the hopes that such a policy would better the condition of the business, when, in reality, we believe it has prevented it, so far as the mines here are concerned.

The iron mines even now have reached a point similar to that long ago touched by the copper mines of the peninsula. Their success depends upon a big output. It has to be made to exclude foreign copper and to meet the reductions caused by the competition of the product of the West. That iron ore will go yet lower, there are many things that point that way, and to meet the cut the only way left is to lessen the expense of production by increasing the amount mined. This the companies can do. Had such a policy been adopted two years ago, the Vermilion district would never have been opened, and, now that it is, we do not believe that it can sell ore at a profit, its location being against the possibility of such an achievement. But it will endeavor to find a place for its product in the market, even though it cannot make a cent. The Southern fields that are now on the eve of being opened would hesitate some time if the Lake Superior producers would do what they could in the way of turning out ores and selling at ruling prices. The time for such action, we believe, has already been reached. The superior quality of our ores entitles them to some respect, certainly, and this the consumers should be willing to concede in their favor as compared with ores of inferior quality. The location of the Lake Superior mines is the most favorable of all others in the country for cheap transportation to the iron-manufacturing centers in the Union; the mines are already equipped with the best-known labor-saving machinery; their management is in the most experienced hands; the supply of mineral is practically inexhaustible, and there is no reason why we should play second fiddle in the contest concert. We do not believe the mining companies hereabouts will do it. They have too much already at stake to be outdone by competitors not possessing anything like their advantages of location and other points of superiority.

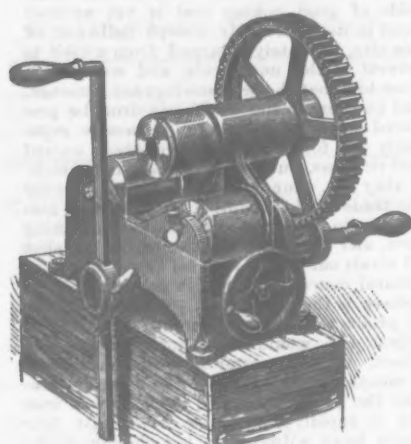
The scheme for a confederation of the British colonies, so long agitated both in Australia and the Dominion, is in a manner rudely forestalled by Germany, whose action in annexing a portion of New Guinea must be terribly exasperating. Confederation had for one of its objects the exclusion of France from soil naturally coming within British jurisdiction, but, the latter having formed a penal settlement in Madagascar, it is probable that the colonists were relieved from their fears. Imagine, then, the feelings excited by this last denouement. Of course the Governments of Victoria, New South Wales and Queensland will vigorously protest. Following closely the many alleged offenses by Germany at other points, and especially the position of antagonism assumed in regard to Egypt and the Upper Congo—for the most part in accord with France—the policy of Bismarck toward England is anything but conciliating.

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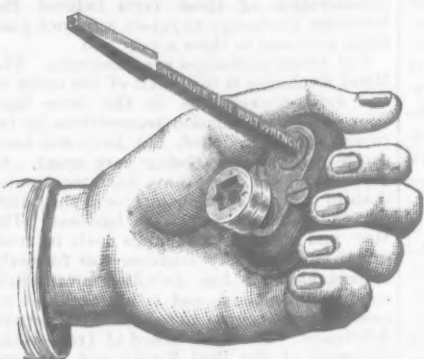
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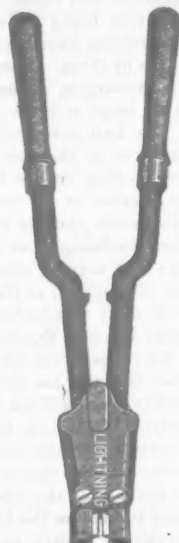
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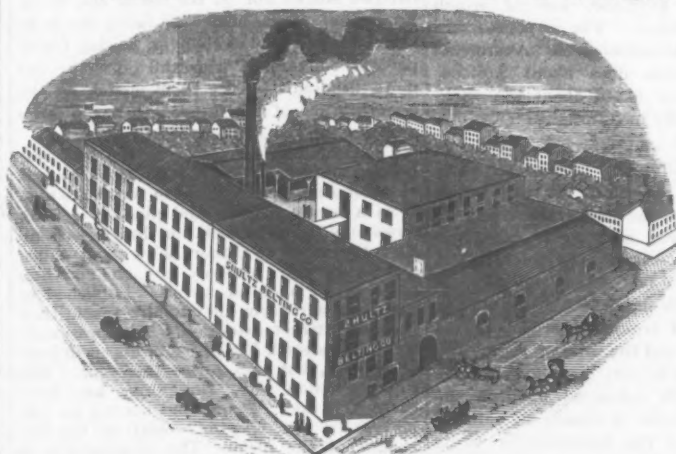
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83 Reade St., New York.

BUFFALO HAMMER COMPANY,

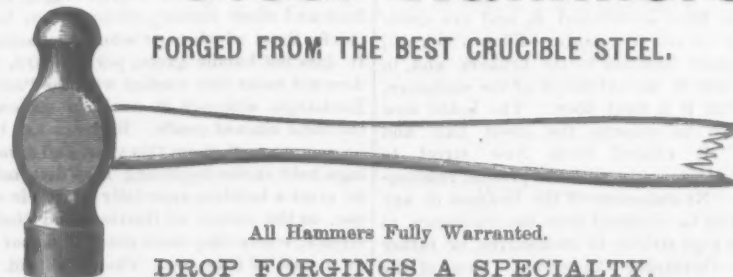
Successors to HENRY W. KIP,

BUFFALO, N. Y.

MANUFACTURERS OF

Solid Steel Hammers.

FORGED FROM THE BEST CRUCIBLE STEEL.



All Hammers Fully Warranted.

DROP FORGINGS A SPECIALTY.

SAM'L A. HAINES Gen'l Sales Agt., 88 Chambers St., New York, City.



Wanted in Every Family

We are now selling to the trade the PATENT RAZOR BLADE POCKET SCISSORS and IDEAL BUTTON-HOLE CUTTER. The blades are fastened to handles by screws; can be removed and sharpened or replaced when worn out. The Ideal Button-Hole Cutter is exceptionally complete; raises size of button-hole, distance from edge, and distance apart with absolute accuracy. Samples sent on receipt of \$2.00. Send for discounts. Address,

THE RAZOR BLADE SHEARS M'F'G CO., Chillicothe, O.

Special Notices.

RECENT BOOKS.

Prescott, Geo. B.—Bell's Electric Speaking Telephone; its invention, construction, application, modification and history. \$4.

Bell, I. L.—Principles of the Manufacture of Iron and Steel; with some notes on the economic condition of their production. \$6.

Smiles, S.—Men of Invention and Industry. 75 cents.

Wright, O. W., M. D.—Maxims of Public Health. 75 cents.

Davis, C. T.—The Manufacture of Leather: being a description of all the processes for tanning, sawing, currying, finishing and dyeing of every kind of leather. \$10.

Phillips, J. A.—Treatise on Ore Deposits. \$7.50.

Pictorial Sketches: comprising statues, monuments, fountains, columns, cathedrals, tombs, iron works, fireplaces, towers, &c. \$1.50.

Schellen, H.—Magneto-Electric and Dynamo-Electric Machines: Their Construction and Practical Application to Electric Lighting and the Transmission of Power. From the third German edition, edited by N. S. Keith and P. Neumann, with large additions and notes relating to American machines. \$5.

Baermann, H.—Text-Book of Descriptive Mineralogy. \$2.25.

Clarke, F. W.—The Elements of Chemistry. \$1.25.

FOR SALE BY

DAVID WILLIAMS,

83 Reade St., NEW YORK.

By the Board of Public

Works of Virginia.

Valuable Manufacturing and Warehouse properties in the City of Richmond, Va., at auction, at the office of

N. W. BOWE,

Real Estate Auctioneer,

No. 4 N. Eleventh St.,

Richmond, Va.,

on Monday, January 12th, 1885,

beginning at 12 M.

This sale embraces about six and two-thirds acres of land adjoining the celebrated Tredegar Iron Works, and immediately on the Richmond and Allegheny Railroad. It is entitled to valuable water-power privileges at a moderate charge, and is well located for foundries, factories, &c.

Also an entire square in the very heart of the city, at the termini of four railroads, and bounded by Canal, Byrd, Seventh and Eighth streets, and well suited for factories, warehouses or general railroad purposes.

For particulars, address the Auctioneer or the Board of Public Works.

N. W. BOWE,

Auctioneer.

AUCTION SALES.

James P. Silo, Auctioneer, 57 Cedar St.

On Wednesday, January 7, 1885, at 11 a.m.,

at No. 49 Dey Street,

Assignee's Sale of Machinery,

in part Lathe Gang Drills, Grinders, Hand and Power Pumps and Presses, Steam Pumps, Heaters, Blowers, Can Formers, Crumplers, Tools and other appliances, office furniture, Cutler desk, safe, &c. By order of

G. G. DUCHER, Esq., Attorney for Assignee.

32 Pine street, New York.

WANTED

A line of Hardware or Hardware Specialties for the South or West. Fifteen years' experience and a good trade. Send samples, with full particulars, to

PHENIX LOCK CO.,

137 Halsey St., Newark, N. J.

ROLLING MILL FOR SALE.

The property includes a Muck and Bar and a Guide Mill; 5 double Pudding Furnaces, and one not quite complete; a Rotary Squeezer, together with Engines, Boilers, Shears, Roll Lathes, and all tools necessary for the production of various kinds of Bar and Merchant Iron. All nearly new and in good order. For full description apply to

HIRAN WOOD & SON,

41 Lexington St., Baltimore, Maryland.

FOR SALE.

Light Hardware, House Furnishing and Crockery Business, wholesale and retail. Well established, with brilliant prospects for steady increase capital moderate. Sell on account of ill-health. This is a rare chance for good business man.

Address **"G. A. R."**

Rochester, N. Y.

NOTICE.

A gentleman who is now General Superintendent of one of the most successful Iron Works in the country desires to make a change, on account of ill-health in the family. Is open to correspondence with manufacturers. Address

"CONFIDENTIAL,"

Office of The Iron Age, 83 Reade St., New York.

A SALESMAN with established trade among Tinners, Hardware Dealers, General Stores and others in the coal region and Eastern Pennsylvania desires representing a Tin Plate, Stove, Hardware or other concern in connection with his present line. Has 10 years' experience on the road, is well posted in Tin Plate, &c., and can give best of references. Could make his headquarters at any desired point.

Address **"A. B. C.,"**

Scranton, Pa.

WANTED.—By an experienced man, a position as Buyer or Salesman for Manufacturers or Jobber of Hardware; is acquainted with the South and Western trade.

Address **"J. C.,"**

Office of The Iron Age, 83 Reade St., New York.

A SALESMAN with established trade among Hardware Dealers in Ohio, Indiana, Illinois and Michigan desires representing lines in that trade, in connection with present line; 25 years' experience. Address

"L. B.,"

3075 Chestnut St., Philadelphia, Pa.

WANTED.—A situation by an experienced man of 45 years of age who has had a large experience as a founder. The best references given as to capacity and honesty. Address

"FOUNDER,"

Care of Reading Eagle, Reading, Pa.

WANTED.—By a gentleman of large acquaintance for the past twenty years with the Hardware trade of the Pacific States and Territories, a position as traveling salesman or resident agent for manufacturers. The best of references given.

Address **"NIPPLER,"**

Office of The Iron Age, 83 Reade St., New York.

Special Notices.

ROOT'S ILLUSTRATED

HARDWARE PRICE BOOKS,

which were successfully introduced the past year, have been improved for 1885, by using extra heavy interleaving paper, with red ink down rulings, and by adding 24 extra unbound printed and illustrated pages pertaining to miscellaneous lines on which stocks vary, of which each house can insert such as interest them. The 280 pages, bound in the regular book, show mainly the lines on which all leading American hardware stocks agree, carefully selected in the interest of the merchant, from 211 different manufacturers, with 1074 illustrations, many of them full size. Books sent of once, charges prepaid, on receipt of the following

PRICES:

Each number has the same 280 printed and illustrated pages, large octavo, 6 1/2 x 9 1/4 inches. They differ only in single or double interleaving and binding. No. 1 contains 478 pages, every other leaf extra heavy writing paper, with red ink head-lines and down rulings, which gives one fine ruled page for noting prices, in pencil, facing every printed page. Four short stubs are placed after each 16 pages, for pasting in other leaves of new goods. Strongly and neatly bound, with dark-colored genuine morocco leather flexible cover and flaps, with pocket inside the cover; also dark-red polished edges. Price, \$7 per copy.

No. 2, like No. 1, but with Russian leather. Price, \$7 per copy.

No. 3, like No. 1, but doubly interleaved, contains 717 pages, 478 of which are the extra heavy interleaving paper, with red ink head-lines and down rulings, which gives one fine ruled page for noting prices instead of one. The sale of No. 3 is now about equal to all the other numbers. Price, \$8 per copy.

No. 4, like No. 1, but without flap or pocket. Price, \$6 per copy.

No. 5, like No. 3, but without flap or pocket. Price, \$7 per copy.

No. 6, like No. 4, but red imitation Russia leather. Price, \$6 per copy.

Old No. 2, with lighter interleaving and without down ruling. A few copies are in stock, which will be closed out, including the 84 extra pages, at Price \$5 per copy.

Special Prices given to houses ordering six or more copies at one time.

Is ordering, state if you prefer Tin, Wooden and Hollow Ware left out. If not so stated, complete books will be sent, including these lines. These Price Books are indispensable to hardware buyers, travelers and clerks, saving often \$100 to \$200 in time, and giving better satisfaction than those made in the ordinary way. Address orders to

T. W. ROOT, Detroit, Mich.

WHAT ARE YOU LOOKING FOR?

I have on hand a very large stock of New and Second-Hand Machinery, comprising

ENGINES, Automatic and Slide Valve,

BOILERS, Vertical and Horizontal,

STEAM AND BELT PUMPS,

STEAM ENGINE GOVERNORS,

MACHINISTS' TOOLS,

HOISTING ENGINES,

WOOD-WORKING MACHINERY,

STURTEVANT BLOWERS.

Write and state your wants, and will send full particulars.

HENRY I. SNELL, M. E.,

135 N. 3d Street,

PHILADELPHIA.

Railway and Machine

Shop Equipment.

New and Second-hand Machinery

OF ALL KINDS.

Large Stock of Cold Rolled

Shafting on Hand.

SEND FOR LISTS, TOO LONG FOR PUBLICATION.

The George Place Machinery Co.,

121 CHAMBERS AND 103 READE STS.,

New York.

For Sale,

Iron Wire Rope.

A lot of Wire Rope, good as new, 3/4 in. diam, hemp center. Will cut in lengths to suit, and sell low. Address

SITES & GILL,

222 and 224 So. Third St., Philadelphia, Pa.

For Sale.

About 40 tons first-class HORSE SHOE SCRAP.

Address **"P. O. Box No. 96,"**

Baltimore, Md.

For Sale.

The sole right to manufacture in this country a patent apparatus for purifying feed-water for steam boilers. Warranted to prevent totally their incrustation, and to enhance their efficiency about 30 per cent. Address

"E. H.,"

P. O. Box 3239, New York City.

Power or Small Shop Wanted.

About 20 Horse-Power wanted, with space on ground floor, more or less, 2500 square feet; or would lease a small shop with power. Must be west of the Hudson River, convenient to freight facilities, and cheap. Address

"IRON AND STEEL WORKER,"

Office of The Iron Age, 83 Reade St., New York.

Wanted.

A Traveling Salesman for New York State, one for Pennsylvania, and one for the East. Must be thoroughly familiar with Hardware and Cutlery. Address, giving age, experience, references and salary expected.

Office of The Iron Age, 83 Reade St., New York.

A WELL-KNOWN Manufacturing Hardware house, with New York store and extensive acquaintance with the export and New York City trade, and with the jobbing trade throughout the West and South, would take a good manufacturer, goods to sell on salary or commission. Have the best of facilities for representing in a thorough and satisfactory way. Address

"MFG. HARDWARE,"

Office of The Iron Age, 83 Reade Street, New York

Special Notices.

A Rare Chance for Foundrymen and Machinists.

The G. A. Kelly Manufacturing Co., 3 1/2 miles west of Jefferson, Texas, on the M. & P. R.R., will be sold as a bargain, as the present owners (bankers and merchants) are inexperienced in this line of business, and have not the time to devote to operating same.

Without exception, it has the finest machinery for putting up Wagons, Hoes, &c., by Steam in the South, and by an addition of patents any and all articles made of iron can be successfully made. A Furnace situated a mile from works, making Car Wheel and Foundry Iron second to none.

Plows of this Company's make have a wide and established reputation, with a good trade in Arkansas, Louisiana and Texas.

There are belonging to Works 100 Acres of Land, with sufficient Houses for accommodation of employees. Situation healthy, with abundance of pure water.

Works unencumbered.

Timber plentiful adjacent Works.

For further information, address

R. BALLAUF & CO.,

General Managers,

Jefferson, Texas.

For Sale.

The Abbott Iron Company offers for sale its property and plant in Baltimore, Md.—the former, an area of more than ten acres, within the city limits, with valuable wharf and water privileges; the latter consisting of, viz:

One Rail Mill, with 21-in. train.

One Bar Mill, with 12-in. train.

Three Plate Mills, two of which are equipped with Lath's patent 3-high Rolls, 31 x 96 in. and 22 x 66 in., respectively, the other with 2-high, 31 x 12 in.

Two Puddling Mills, one with 16, the other with 6 double Puddling Furnaces.

Stable, Office, &c.

For further information, apply to

ABBOTT IRON CO., Baltimore, Md.

R. FRANCIS WOOD, 206 S. 5th St., Phila., Pa.

For Sale.

FACTORY NEAR INDIANAPOLIS, IND.

The buildings and 7 acres of land known as the Telephone Factory, located just outside of Indianapolis, with a switch connection on the C., I., St. L. and C. R. R. Main building, 100 x 50, brick, three stories, slate roof and elevator in center. Adjoining building, 20 x 40, two stories of brick. Engine and boiler building and Smoke Stack of brick. Modern built 22 H. P. Engine, of first-class make; 2 boilers and setting; main line shafting and pulleys. Everything in good condition. Suitable for light manufacturing of any kind, or for Furriers or Agricultural Implement business. Cheap coal; small taxes; best point in the West for cheap freights. For sale cheap.

Address **WESTERN ELECTRIC CO.,**

Chicago, Ill.

Wanted.

By a man of twenty years' experience, a situation as Store or Traveling Salesman in Hardware, Guns or kindred branches. References ample. Address **H. W. LINDLEY,**

Havana, Ill.

Wanted.

A Traveler who is thoroughly acquainted with Hardware Jobbing Trade of the Northern States, wants sales of two or three Factories' Goods who make special lines. Address **"TRAVELER X,"** Office of The Iron Age, 83 Reade St., New York.

Wanted.

A Situation as Roll Turner. Has had 16 years' experience both in Steel and Iron. Heat of reference. **"ROLL TURNER,"**

Box 243, Boonton, Morris Co., N. Y.

Wanted.

Position as Salesman in Store, Tin and Hardware store by a man who understands the business. Strictly sober. Best of references. Address **"CLERK,"**

Box 202, Flemington, N. J.

800

Engines and Boilers

FOR SALE.

I am crowded for room and will sell cheap or trade for Nail, Bar Iron or Pipe.

H. M. SCIPLE,

107 and 109 N. Third St., Philadelphia.

Manufacturing Plant for Sale, Cheap.

The property consists of 12 acres of land, with dam, flumes and buildings that are nearly new. The water-power is never-failing, and abundant. The factories consist of

One Brick Building, 95 ft. x 35 ft., with L.

One Frame Building, 37 ft. x 17 ft.

One Frame Storehouse, 25 ft. x 41 ft.,

and on the premises are Five Frame Tenements. A double track railroad siding runs to the factory doors, and has a new Fairbanks Track Scale. The plant has been used as a foundry and machine shop, but is adapted to any manufacturing where good power, good light and plenty of room are necessary. The location is near Hartford, and affords cheap transportation to all points at as low rates as any place in New England. The property will be sold at a very low price. For particulars, address

"E. B.,"

No. 60 Walnut St., Hartford, Conn.

THE CLEVELAND

Storage Company

Are prepared to receive **FIG. BAR AND SHEET IRON, LUMBER AND ORE,** Blooms, Ingots, Muck-Bar, Car Wheels, Rails, Machinery, Nails, &c. We also arrange to store

Fig Iron at Furnaces, Lumber at Mills or in Yards. Ore on Docks at Mines. Warrants will be issued on all stock received, made transferable by indorsement and deliverable to the holder on demand. These warrants will furnish a convenient medium of transfer and delivery, and serve as collateral to parties wishing advances on their stock. Correspondence solicited.

W. R. DRAKE, Sec. Room 35,

Merchants' Bank Building, Cleveland, Ohio

Any One

who will send me the name or give me such information as will lead to the sale of a Boiler Engine or Mill, will receive a regular commission.

H. M. SCIPLE,

107 to 109 N. Third St., Philadelphia.

THE ADVERTISER, with over twenty years' experience in selling goods for manufacturers with the Iron and Hardware trades throughout the United States, would be pleased to represent one or two more men of large and staple goods, which can be placed in large quantities with wholesale trade exclusively. References ample.

Address **"VETERAN"**

Office of The Iron Age, 83 Reade St., New York.

Special Notices.

New & Second-Hand Machinery.

NEW.

1 Engine Lathe, 10 in. x 3 1/2 ft.
1 each, Engine Lathes, 11 in. x 4 and 5 ft.
1 each, " " " " 12 in. x 5, 6 and 8 ft.
1 Engine Lathe, 14 in. x 5, 6 and 8 ft.
1 " " " " 16 in. x 5 ft.
1 each, Engine Lathes, 15 in. x 6, 7, 8 and 10 ft.
1 Engine Lathe, 18 in. x 6, 8, 10 and 12 ft.
1 " " " " 20 in. x 8, 10, 12, 14 and 16 ft.
1 " " " " 22 in. x 10, 12, 14 and 16 ft.
1 " " " " 24 in. x 12, 14 and 16 ft.
1 " " " " 26 in. x 14, 16 and 18 ft.
1 " " " " 28 in. x 16, 18 and 20 ft.
1 " " " " 30 in. x 18, 20 and 22 ft.
1 " " " " 32 in. x 20, 22 and 24 ft.
1 " " " " 34 in. x 22, 24 and 26 ft.
1 " " " " 36 in. x 24, 26 and 28 ft.
1 " " " " 38 in. x 26, 28 and 30 ft.
1 " " " " 40 in. x 28, 30 and 32 ft.
1 each, Turret Lathe, 15 in. x 5 ft. Rod feed only.
1 Fox Turret Lathe, 16 in. x 6 ft.
1 Fox Lathe, 15 in. x 5 ft. Round Arbor.
1 Fox Lathe, 15 in. x 5 ft. Square Arbor.
1 each, Hand Lathes, 10, 12, 15 and 18 in. swing.
1 Iron Planer, 18 in. x 18 in. x 3 ft.
1 Iron Planer, 20 in. x 20 in. x 4 and 5 ft.
1 Iron Planer, 22 in. x 22 in. x 7 and 10 ft.
1 Iron Planer, 24 in. x 24 in. x 10 ft.
1 " " " " 26 in. x 26 in. x 10 ft.
1 each, 15, 20, 22, 24, 26, 28, 30, 32 and 36 in. Upright Drills.
1 each, Nos. 2, 3, 4 and 6 Spindle Gang Drills.
1 each, 8, 10, 12, 14, 16 and 24 in. Shapers.
1 each, Nos. 1, 2, 3 and 4 Milling Machines.
1 No. 2 Milling Machine, Lincoln Pattern.
1 New Pattern Milling Machine. Grant & Bogert.
1 each, Nos. 2, 4, 6 Wire Feed Screw Machines.
1 each, Nos. 2 and 7 Spindle Nut Tappers.
1 Boring and Turning Mill, each 10 and 22 in.
1 Gray's Screw Machine, to take all sizes to 1 in.
1 3-in. Gear Cutter.
1 Grant & Bogert Cutter Grinder.

SECOND-HAND.

1 Engine Lathe, 15 in. x 6 ft. Wood & Light.
1 " " " " 16 in. x

Special Notices.

CREDITS.

EALY'S "BLUE BOOK,"
JUST PUBLISHED,
contains the names, address, financial standing
and paying qualities of over 150,000 dealers in
Hardware, Iron, Metals, Machinery, Cutlery,
Guns, Brass Goods, Machinists, &c.,
IN THE UNITED STATES AND CANADA.

This list is NEW, having been carefully com-
piled within the past three months by over
20,000 Special Local Correspondents and Mer-
chants in the Trade, at an expenditure of many
thousands of dollars.

It is guaranteed to be as reliable in every
particular as any Reference Book for determining
credits can be made, and is much more con-
venient than the general Agency books, as it is
condensed, being confined exclusively to this special
branch of trade.

We have reliable and active local correspond-
ents in every City, Town and Village in the
United States and Canada, and can furnish sub-
scribers with late and full written reports regard-
ing the character, habits and ability of their
customers.

This Agency is devoted to and managed wholly
in the interest of the special branch of business.

The "Blue Book" is published twice a year.
Terms of subscription, &c., made known on ap-
plication to either of our offices.

THE JOHN W. EALY COMPANY,

79 Dearborn St., Chicago 51 Chambers St., New York.

BARGAINS

NEW AND SECOND-HAND MACHINERY.

- 1 Corliss Beam Condensing Engine, 30-in. cylinder, 72 in. stroke.
- 1 Horizontal Corliss Engine, 16-in. cylinder, 48-in. stroke.
- 1 Horizontal Corliss Engine, 14-in. cylinder, 30-in. stroke.
- 1 Horizontal Corliss Engine, 12-in. cylinder, 30-in. stroke.
- 1 Horizontal Corliss Engine, 12-in. cylinder, 18-in. stroke.
- 1 Horizontal Corliss Engine, 10-in. cylinder, 22-in. stroke.
- 1 Locomotive Boiler, 100 H.-P.
- 6 Horizontal Tubular Boilers, 5 ft. diameter, 22 ft. long.
- 1 Horizontal Tubular Boiler, 4½ ft. diameter, 13 ft. 8 in. long.
- 1 Locomotive Boiler, 36 in. diameter, 12 feet long.
- 1 Upright boiler, 4 ft. diameter, 1½ ft. high, 63 3-in. tubes.
- 1 10-horse N. Y. Safety Engine and Boiler combined.
- 1 7-horse Engine and Boiler combined.
- 1 4-horse Oscillating Engine and Boiler combined.
- 2 Knowles & Kelly Steam Pumps.
- No. 4 Davidson Steam Pump. New.
- 1 Knowles Special Steam Pump, No. 7.
- No. 38 Sturtevant Exhaust Fan.
- 1 6-in. Sturtevant Blower.
- 1 50-lb. Stiles & Parker Drop Press.

A large lot of good second-hand Belting, Shafting, Pulleys and Hangers.

J. GRAY'S MACHINERY DEPOT,
No. 37 DEY STREET,
New York City, N. Y.

J. SEIDEL,

Commission Merchant.

Box 662,

HABANA, CUBA.

Will be happy to accept the representation of
first-class houses manufacturing hardware. Bills
paid and collected on commission.

Reference:

COLLINS & CO., 212 Water Street, New York.

LEIGH'S DISCOUNT BOOK

Specially arranged for the use of the
HARDWARE TRADE.
Acknowledged by ALL the best work of the kind
ever published. Price by mail ONE DOLLAR.
Address **E. B. LEIGH,**
Sec'y The American Brake Co., St. Louis, Mo.

For Sale,

At Appleton, Wis.,
A controlling interest in a long-established
FOUNDRIY AND MACHINE BUSINESS,
now running at its full capacity, and doing well
upon specialties and general work. The property
consists of Land, Buildings, Tools, Patterns and
Stock, all in good condition, with ample water-
power for all present and future demands. It is
located in a district rapidly growing in manu-
facturing interests, and where there are unequalled
shipping facilities. Only reason for selling, the
demands of other business. Any other infor-
mation will be cheerfully given.

Address **H. F. BARRETT,**
Taunton, Mass.

EVERY HARDWARE DEALER

Should have the Counting House edition of

Jennings's Discount Tables.

Cloth Bound; Size, 9 x 11; Large Type (former
price, \$3.00); will be sent postpaid on receipt
of \$1.25. Address **B. H. JENNINGS,**
Deep River, Conn.

RARE Opportunity—To purchase the stock of
Hardware, Stoves and Tinware, together
with the good-will of an establishment doing a
successful business for nearly one-third of a cen-
tury in the prosperous village of Fulton, Oswego
County, N. Y. Severe and continued illness of
proprietor alone induces this proposition to sell.
Those desirous of investing in a successful and
permanent enterprise will consult their interests
by corresponding with the proprietor.
JOHN H. WOODIN,
Fulton, Oswego Co., N. Y.

For Rent

AT BRIDGEPORT CONN.,

A brick factory, 55 x 162 feet, with a high base-
ment and two stories; with 40-horse steam power.
Address **P. O. BOX 5,**
Bridgeport, Conn.

WANTED—Situation as Foreman of a Malleable
Iron works by the advertiser, who has had 14
years' experience in the same capacity, and has a
thorough knowledge of the business; understands
putting up Furnaces and Overdoors.
Address **"MALLEABLE,"**
205 Vall av., Troy, N. Y.

Trade Report.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, TUESDAY, December 30, 1884.

Scotch Pig.—The market is a little
weaker. We quote makers' brands as fol-
lows:

Coinness, alongside, Glasgow	56/6
Langloan, " "	57/
Gartsherrrie, " "	58/
Summerlee, " "	59/6
Carnbroe, " "	49/6
Glenarnock, " Ardrossan	49/
Eglinton, " "	48/6
Dalmellington, " "	48/
Shotts, " at Leith	53/

Lighterage from Ardrossan to Glasgow is 1/4 ton.

Cleveland Pig.—The market is un-
changed. We continue quotations, f.o.b. ship-
ping ports:

Middlesboro, No. 1 Foundry	39/
" No. 2	37/6
" No. 3	35/6 @ 36/
" No. 4 Forge	34/

Bessemer Pig.—Is unchanged. W. C.
Hematites are quoted 44/ @ 44/6 for mixed
lots, Nos. 1, 2 and 3, equal portions, f.o.b.
shipping ports.

Manufactured Iron.—The market is
irregular. We quote at works:

Staff. Ord. Marked Bars	7 10 0 @ 7 10 0
" Medium	6 0 0 @ 6 10 0
" Common	5 10 0 @ 5 15 0

Hoops, 30 W. G. and over.

" Common Best	6 15 0 @ 6 15 0
" Medium	6 5 0 @ 6 10 0
" Common	6 0 0 @ 6 7 6

Sheets, 30 W. G. and under.

" Ordinary Best	7 15 0 @ 8 5 0
" Common	7 5 0 @ 7 15 0
Welsh Bars	4 17 6 @ 5 2 6

Steel Rails.—Are unchanged. We quote

£4. 17/6 @ £5, f.o.b. shipping ports.

Old Rails.—Are unchanged. We quote

Old D. H's, c.i.f. New York, £3 @ £3. 5/.

Scrap.—Is unchanged. Heavy Wrought

is quoted £2. 10/ @ £2. 12/6, c.i.f. New York.

Copper.—The market is irregular. We
quote Best Selected, £53 @ £54. 10/, and
Chili Bars, £47. 5/ @ £47. 15/.

Tin.—Is a little weaker. Straits Ingots,
spot, £74 @ £74. 15/, and futures, £74. 10/ @
£75. 5/.

Tin Plates.—Are irregular. We quote:

Tin Plates, 10x14, 1st qual. Charcoal	19/6 @ 21/6
" " " "	18/6 @ 19/6
" " " Coke	17/6 @ 18/6
" " " "	16/6 @ 17/6

Lead.—The market is quiet. We quote

Common English Pig, £10. 15/ @ £11.

Freights.—Steam from Glasgow to New
York, 1/6.

Financial.

Office of The Iron Age,
TUESDAY EVENING, December 30, 1884.

The approach of the new year, though
contemplated with hopefulness, brings with it
a shadow. The uncertainties of legisla-
tion and misgivings in regard to the future
of the currency suffice to explain the alloy
of confidence and doubt, and there are still
other elements, in the nature of unknown
quantities, for which no calculation is possi-
ble. Taking all in all, making due allow-
ance for the interruptions of the holiday
season, now fully upon us, the better feeling
noticed within the last fortnight or so still pre-
dominates. It is certain that in some aspects
the supposed effects of commercial de-
pression have been exaggerated. For ex-
ample, no small proportion of our business
houses find the aggregate of their sales for
the year compares well with that of previous
years, if not in excess. It is likewise noticed
that old observers like the president of the
Produce Exchange, and other gentlemen
long familiar with commercial affairs, are
almost unanimous in their belief that the
worst is known—that relations of supply
and demand are approaching a normal basis,
affording ground for a stronger confidence.

On the Stock Exchange the shrinkage of
prices noticed a week ago has been further
emphasized. With a dull market the list
has touched a lower level, but to-day there
was a decided recovery. Professional specu-
lators in New York and Chicago seemed to
be chief in control. Apparently there was
no substantial cause for improvement, as the
coal imbroglio still remains, and the trunk-
line situation is about the same. On Friday
the whole list declined, notably Delaware
and Hudson; Lackawanna was moved up-
ward in consequence of the declaration of
the quarterly dividend of 2%, and the state-
ment by the president that the earnings for
11 months showed 9½% for the stock. On
Saturday prices were much unsettled by
various rumors. The coal shares and Van-
derbilt stocks were vigorously attacked.
On Monday Union Pacific and Western
Union were also attacked, and Mani-
toba fell sharply. To-day there was a
strong advance, most noticeable in the
coal shares. Quotations as follows:

Burlington and Quincy, 114½; Central
Pacific, 33½; Lackawanna, 91½; Delaware
and Hudson, 70½; Erie, 14½; East Ten-
nessee preferred, 5½; Kansas and Texas,
15½; Lake Shore, 61½; Louisville and
Nashville, 25½; Manhattan Consolidated,
66½; Missouri Pacific, 90½; New York
Central, 85½; Jersey Central, 39½; North-
western, 84½; Northern Pacific preferred,

40½; Oregon and Transcontinental, 13½;
Pacific Mail, 55½; Reading, 18; St. Paul,
71½; Omaha, 24; do. preferred, 83½;
Manitoba, 80; Union Pacific, 45½; Western
Union Telegraph, 55½. The Stock Ex-
change committee appointed to devise a
plan for clearing stocks has agreed and will
present its report at the next meeting of the
Governing Committee.

United States bonds closed as follows:

	Bid.	Asked.
U. S. 3 per cents	101¼	—
U. S. 4½, 1891, coupon	118	118¼
U. S. 4½, 1897, coupon	123½	124
U. S. Currency 6s, 1890	135	—
U. S. Currency 6s, 1896	135	—
U. S. Currency 6s, 1897	126	—
U. S. Currency 6s, 1898	128	—
U. S. Currency 6s, 1899	130	—

In the general trade of the city business
during the past week has been fair for the
season. On Saturday there was unexpected
activity in the grain market, both in New
York and the West. Provisions were
affected in sympathy, and at present writing
prices are further stimulated by better cables
from Europe. Shipments of grain from
Russia and India to the United Kingdom are
falling off, from the former in consequence
of closed navigation. Corn sold yesterday
at 60¢, an advance of 4½¢ compared with
the previous week, but the improvement
may be temporary. Cotton is quiet, but
steady; exports 2,178,461 bales since Sep-
tember 1, against 1,783,301 bales to the same
date in 1883. In dry goods for future wants
there have been a number of engagements
for spring specialties, but in all departments
jobbing is quiet. In cotton goods duplicate
purchases cannot be secured at the lowest
prices current one month ago.

The aggregate exchanges from 24 leading
clearing houses in the United States are
\$629,156,877, against \$828,585,759 for the
corresponding week last year, a decrease of
24.1%; outside of New York, \$185,715,053,
against \$193,792,020, a decrease of 3.9%.
Memphis shows a gain of 15.7%; Milwaukee,
7.1%; Providence, 6.9%; and Lowell, 6.1%.
Boston, Louisville and Indianapolis also show
slight gains.

The weekly report of the Associated Banks
shows a further increase of \$258,150 in sur-
plus reserve, which is remarkable in face of
the extraordinary demands for money usual
at the close of the year, in preparation for
the annual settlements. The reserve now
stands at \$40,944,775, against \$6,748,950 at
the same time last year, and \$3,375,400 at
the corresponding date in 1881. The loans
show a gain this week of \$1,531,800. The
history of the New York banks since the be-
ginning of the year is without precedent. A
surplus of \$21,000,000 in February was
changed to a deficit of \$6,600,000 during the
crisis of May. Then came a reaction, in
which the reserve not only reached the pre-
vious total, at the time regarded with feel-
ings little short of amazement, but has since
steadily augmented to its present volume.

Very naturally, financial institutions and in-
dividuals alike find it difficult to put out
money at rates yielding satisfactory returns.
Accounts of the monetary situation in the
West are generally favorable, collections for
the most part being better than was ex-
pected a short time ago, and payments due
in January are in some instances antici-
pated. The Comptroller of the Currency
says a large number of national banks whose
charters expire within the next few months
have already applied for extension, and
there is no indication that the New York
banks will form any exception.

The imports of foreign merchandise are
again extremely light, but are nearly \$600,-
000 larger than for the previous week. The
total last week was \$4,907,270, of which
\$3,466,751 represented general merchandise,
and the remainder (\$1,440,528) dry goods.
Since January 1 the imports aggregate \$415,-
528,885, compared with \$461,600,544 for the
corresponding period of 1883. The exports
of merchandise for the week, not yet being
compiled at the Custom House, are neces-
sarily omitted. Of specie the imports for
the last week were \$422,277, nearly all in
gold, making a total since January 1 of
\$31,665,736, against \$21,398,008 for the same
time in 1883. The exports of specie last
week were \$374,541, making a total since
January 1 of \$52,393,374, against \$16,112,-
247 for the same time in 1883. For Novem-
ber the excess of exports over imports in the
United States is officially shown to have been
\$27,000,000. The comparison for 11 months
in two years is as follows:

	1883.	1884.
Exports	\$719,554,708	\$697,588,676
Imports	638,080,470	587,051,806

Excess of exports... \$86,474,238

The falling off in totals compared with
1883, as regards both exports and imports, is
mainly due to lower valuations.

The quarterly report of the State banks of
discount and deposit, made to the bank
superintendent at Albany, shows that for
the three months ending December 13 there
was an increase in deposits of \$18,998,351,
and in resources of \$19,998,770. The in-
crease in loans and discounts for the same
period was \$2,250,058.

The old Atlantic cable companies have re-
duced their tolls to the same figures as those
established by the Commercial Cable Com-
pany—that is, 40¢ a word for general busi-
ness messages to Great Britain and France.
The change is welcomed by the mercantile
classes.

Metal Market.

Copper.—Intelligence reached this city
last night from Montana that the miners of
the Anaconda Copper Mining Company
have struck for higher wages. The Anaconda,
as we mentioned a fortnight ago, is one of
the two Montana mines which have made

heavy contracts for delivery in Europe.
That miners, being aware of this, should
avail themselves of this circumstance to try
to better themselves in point of wages, is a
thing which will surprise nobody. Indeed,
the example may be followed by the men at
other mines also under European contracts,
and, if their demands are exorbitant, work
may be suspended for a time at various
centers of Copper production in this
manner. As this is a feature which had not
been taken into consideration in what has
recently been said and written about Copper
and its near future, it puts a new face upon
the entire thing, and, of course, strengthens
the market very much here, so that Lake
Copper could not be got to-day for less than
11½¢, nor Arizona, Baltimore commanding
11¢. In London this piece of news was not
yet widely known, probably, this morning,
but even without this changed aspect Chili
Bars improved from £47. 7/6 yesterday to
£47. 10/. We alluded in our last report to a
sale of Lake Copper to manufacturers at
10½¢, which was all that was known of the
transaction at the time. Since then it has
been ascertained that the Lake syndicate
sold to a certain number of privileged
manufacturers about 12,000,000 lb of
Copper, delivery spread over five months,
upon the ensuing terms: The Chili Bar
quotation in London is to determine the
precise price paid here on delivery—that is
to say, the price which the said manufac-
turers pay for their Lake Copper is not to be
less than 10½¢, if between the 10th and
25th of the month preceding the delivery,
the price for Chili Bars in the London
market £48 or under, with ½¢ ½ lb
additional for every advance in London of
10/ ½ ton in Chili Bars, till £53 or over be
reached, when the price paid here is to be
11½¢. Since then nothing has transpired in
the way of sales. According to Messrs.
James Lewis & Son's Liverpool circular of
December 16, the import of Fine Copper
from the United States into Liverpool and
Swansea was at that date, since the begin-
ning of the year, 16,473 tons, against 8635
in 1883. Manufacturers may be nominally
quoted: Bottoms, 20¢; Braziers, 19¢ @ 25¢;
Sheathing, 17¢, and Bolt Copper, 18¢. From
London we receive to-day the following
cablegram: "Market irregular. Best Se-
lected, £53 @ £54, and Chili Bars, £47. 5/
@ £47. 15/."

Tin.—Our market has still remained a
good deal unsettled in response to the Lon-
don fluctuations, the latter again coming
lower, giving way from £74. 10/, Straits
yesterday, to £74. 7/6 this morning, for spot
goods, and from £74. 17/6 yesterday to £74.
10/ this morning, for three months. We quote
our own market this morning, large lines,
16½¢ nominally. We received this after-
noon the following cable dispatch from Lon-
don: "Market a little weaker. Straits In-
got, spot, £74 @ £74. 15/, and futures,
£74. 10 @ £75. 5/." Tin Plates—Have been
moderately inquired after, without change in
values, except Cokes, 5¢ lower. We quote
large lots, ordinary brands, at the close,
½ box: Charcoal Bright, \$5 @ \$5.25; do.
Ternes, \$4.65 @ \$4.75; Coke Tin, \$4.45 @
\$4.55, and do. Ternes, \$4.37½. Liverpool is
quiet but firm at 14/ @ 14/3, Coke, and 16/
@ 18, Charcoal. From London we are told
that there is no change.

Lead.—Nothing beyond a small jobbing
business has been done, and the Spot market
may be called absolutely dull, but there is
more inquiry for distant futures at full
prices. We quote Ordinary Spot, \$3.55 @
\$3.65, and Corroding, \$3.60 @ \$3.65; the
former, futures, \$3.55 @ \$3.65, and the latter,
ditto, \$3.60 @ \$3.70. St. Louis wires Ordi-
nary, \$3.37½, and Corroding, \$3.40. Manu-
facturers are quoted as follows: Lead Pipe,
5½¢ ½ lb; Sheet Lead, 6½¢; Tin-Lined Lead
Pipe, 15¢, and Block-Tin Pipe, 40¢, allowing
in trade for Old Lead delivered in New York
3¢ ½ lb. Shot: Drop, 6¢; Buck, 7¢; Chilled,
7¢. Shot in 5-lb bags, 1¢ ½ lb extra. We
learn that there is no change in the London
market.

Spelter and Zinc.—Common Domestic
Spelter is very dull, and in consequence has
been selling as low as 4½¢ on the spot in
small parcels. Silesian is worth \$4.80,
nominally. Bertha Refined we quote 8¢.
Sheet Zinc has remained quiet at 5½¢ @
5½¢.

Antimony.—Although London has re-
ceded with Hallett to £40, the market here
has remained steady at 10½¢ for the latter,
and 11¢ for Cookson.

Coal.

The Anthracite Coal trade is unusually
quiet, pending important measures yet under
discussion relating to the output for another
year. All consultations held thus far are
only preliminary to an agreement now sup-
posed to be nearly closed. A meeting of the
general committee of all interests was ar-
ranged to be held on Wednesday of the present
week in the office of the Pennsylvania Coal
Company, in New York, and it is un-
derstood the committee recently appointed
would report upon the statements submitted
to them. Until results are definitely known
business will be restricted to the smallest
scale. According to report, the hitch thus
far has been in the attitude of Reading,
which desires a larger percentage of the
output than others are willing to concede.
Where 1¢ means 300,000 tons per annum it
is naturally reasoned that concessions are
granted with caution. Sales for the present
being almost nil, we refrain from giving
quotations until another week.

The Philadelphia Ledger says: "There
appears to be some doubt as to the meeting
fixing upon a permanent arrangement at the
next session, but, should it not, there would
probably be an arrangement entered into
upon some equitable basis to cover the com-
ing month or two. We are reliably informed
that it is the disposition of the Reading com-
pany to enter whatever combination may be
made, provided, of course, that it be
awarded an equitable and just apportion-
ment of the tonnage allotment."

The total amount of Anthracite mined thus
far in the year 1884 is 29,912,462 tons, com-
pared with 31,154,065 tons for the same
last year—a decrease of 1,241,603 tons. The
total amount of Bituminous sent to the East-
ern markets thus far in the year 1884 is
5,413,660 tons, compared with 4,661,449 tons
for the corresponding period last year—an
increase of 452,211 tons.

Old Metals, Rags, &c.

The purchasing prices offered by dealers
are as follows:

Copper, heavy	10¢ @ 10½¢
" light	9¢ @ 9½¢
Copper Bottoms	8¢ @ 8½¢
Yellow Metal	7¢ @ 7½¢
Brass, heavy	6¢ @ 6½¢
" light	5¢ @ 5½¢
Composition, heavy	4¢ @ 4½¢
Lead, heavy	3¢ @ 3½¢
Tea Lead	2¢ @ 2½¢
Zinc	1¢ @ 1½¢
Pewter, No. 1	12¢ @ 13¢
" No. 2	10¢ @ 11¢
Wrought Iron	10¢ @ 11¢
Light	10¢ @ 11¢
Soft Plate Iron	10¢ @ 11¢
Machinery	10¢ @ 11¢
Grate Bars	4¢ @ 4½¢
Stereotype Plates	1¢ @ 1½¢
Electrotype	1¢ @ 1½¢
Small Type	1¢ @ 1½¢

The prices current (prices paid by local
dealers) for Rags, &c., are as follows:

Canvas, Linen	3½¢ @ 4¢
" Cotton	3½¢ @ 4¢
" No. 2	3½¢ @ 4¢
White No. 1	3½¢ @ 4¢
" No. 2	3½¢ @ 4¢
Seconds	3½¢ @ 4¢
Soft Woollens	14¢ @ 15¢
Mixed Rags	14¢ @ 15¢
Gunny Bagging	14¢ @ 15¢
Jute Butts	14¢ @ 15¢
Kentucky Bagging	14¢ @ 15¢
Book Stock	14¢ @ 15¢
Newspapers	14¢ @ 15¢
Waste Paper and Scraps	14¢ @ 15¢
Kentucky Bale Rope	14¢ @ 15¢

The Late John M. Bruce.

Merchants in the metal trade have passed
resolutions of condolence in respect to the
memory of the late John M. Bruce, as fol-<

Trade Report.

New York Iron Market

The week between Christmas and New Year's Day is naturally a very dull season for most branches of trade. The period just passed, however, has been exceptionally dull, and in many lines very little business is reported. The coming year is greeted hopefully, but even the most buoyant members of the Iron trade do not go so far as to prophesy better prices. The most they look for is a fair volume of business, which will evidently be secured by those in a position to make low quotations.

American Pig.—A few purchasers have been in the market for Pig Iron for next year's delivery, but the demand has principally been for very small lots. In this respect the market shows no change from the conditions prevailing for the last couple of weeks, but increased activity is looked for shortly. The market for Foundry Irons is not now influenced by anything beyond the ordinary conditions of supply and demand, but the market for Gray Forge is to a certain extent being operated upon by contracts for Cast Iron Pipe which will soon be placed. If these large contracts are taken by Eastern parties, of which there seems to be a reasonable chance, a very large quantity of Gray Forge Pig Iron will be required, which may make that grade of Iron scarce and will cause the price to be held quite firmly. At present manufacturers of Gray Forge Pig Iron are chary about quoting prices, with the knowledge of these facts before them, believing that eventually they may be able to get somewhat better figures than those now prevailing. We hear of a number of other Pig-Iron manufacturers who are refusing to sell their product at ruling prices, and assert that they will pile it up rather than sell it at bare cost or at a loss; but if the Eastern Pennsylvania railroad companies reduce freights on raw material, and the Anthracite-Coal companies reduce the price of Coal to furnacemen, it may change their feelings on this subject and cause them to re-enter the market with an increased desire to sell. The reduction of cost effected in this way may also possibly increase the production of Iron next year, as there are a number of furnaces that are understood to be ready to go into operation whenever freights and coal are put at a sufficiently low figure. Southern Pig Iron is being sold in Boston and Providence at \$18.50 for No. 1 X. This is still below the price at which standard Lehigh Valley brands can be delivered at those points. The Southern Iron-makers insist that they are yet able to reach many points in New England and even in this vicinity, and that they intend to hold their trade. Quotations for standard brands at tidewater are as follows: No. 1 X Foundry, \$18 @ \$19; No. 2 X Foundry, \$17 @ \$18; Gray Forge, \$16 @ \$17.

Scotch Pig.—Receipts at this port since our last issue have amounted to only about 400 tons. Some of the importers of Scotch Pig in this market have been strenuously endeavoring to make sales during the past week, but the best offers they could get have been about \$1 or \$2 below cost of importation. This branch of the Iron business is evidently nearing its end. Nominal quotations for small lots are as follows: Coltness, \$21.50 to arrive; Gartsherrie, \$21 to arrive, \$22 from yard; Shotts, \$21.50 @ \$21.75 to arrive, \$22 from yard; Langloan, \$21.50 to arrive, \$22 from yard; Carnbroe and Glengarnock, \$19.50 @ \$22 to arrive, and \$20.50 @ \$20.75 from yard; Summerlee, \$20.50 @ \$21 to arrive; Dalmellington, \$19.50 to arrive; Eglinton, \$19 to arrive; Clyde, \$19.50 to arrive.

Bessemer Pig and Spiegeleisen.—Business under this head has been exceedingly quiet, no transactions having been reported. Foreign Bessemer Pig is still quoted nominally at \$19; 20 % Spiegeleisen, \$26; 30 % Spiegeleisen, \$30.

Bar Iron.—Business in mill lots has been quiet during the week under review, some small orders having been entered, and a very few orders of some size. Many mills are shut down at this time, hence are not actively in the market. Few inquiries are in hand for next year's delivery, and the business in sight is not of any magnitude. We quote nominal prices as before: Common Iron, at mill, 1.45¢ @ 1.7¢; from store, 1.7¢ @ 2¢; Best Refined, at mill, 1.65¢ @ 2¢; from store, 1.9¢ @ 2¢.

Structural and Shaped Iron.—General business has been exceedingly light, as is usual at this time of the year, but one or two large contracts have been placed and a few others are pending. Quotations for small lots are nominally as follows: Angles, from store, 2.3¢ @ 2.6¢; Tees, from store, 2.8¢ @ 3¢; Beams and Channels, on dock, 3.5¢. Large lots are sold at concessions from these figures.

Plates.—The only business transpiring consists of sales of small lots. For Iron Plates nominal quotations are as follows: Common or Tank, 2.2¢ @ 2.3¢; Refined, 2½¢; Shell, 2½¢; Flange, 3½¢; Extra Flange, 4¢ @ 4½¢. For small lots of Steel Plates the quotations are as follows: Ship, 2½¢ @ 3¢ at mill; Tank, 3¢ @ 3½¢ on dock; Boiler, 3½¢ @ 5½¢. A. R. Whitney & Co. quote the following figures on Steel Plates on dock here: Shell, 3½¢; Flange, 4¢; Fire-box, 4½¢.

Wrought-Iron Pipes.—The demand for Pipes is dull at present, and prices are weak. The following are open quotations: Butt-welded, 45 % discount; Lap-welded, 65 % discount; on Galvanized Butt-welded the discount is 35 %, and on Galvanized Lap-welded the discount is 50 %. These prices are shaded to the largest buyers.

Sheet Iron.—Business is exceedingly quiet, but prices are slightly firmer in the absence of disturbing influences from the West, which have, temporarily at least, been removed from the market. Quotations are given in our list of New York Wholesale Prices.

Merchant Steel.—The demand continues very light, and prices are nominal. We quote as follows: American Tool Steel, 9¢ @ 9½¢; Tool Steel of special grades and finer qualities, 12¢ @ 20¢; Crucible Machinery, 5¢ @ 6¢; Spring and Tire, 3¢ @ 3½¢; Open-Hearth and Bessemer Machinery, 2¼¢ @ 3¢; English Tool, 14½¢ @ 15¢.

Steel Rails.—Business has been very limited during the last week, only a few small lots having been sold. Most of the mills are now idle either for an indefinite period of suspension or for a temporary close for the holidays and for repairs. Only three of them are now in operation. Quotations are generally \$28 at mill, but there are still some sellers at \$27.

Steel Wire Rods.—The nominal quotation is \$15, but trade is very quiet, and it is quite likely that this figure could be shaded considerably by an actual buyer.

Old Rails.—We are reported no sales whatever during the past week, business for the present having been completely suspended. Nominal quotations are still \$16.50 @ \$17.

Scrap Iron.—In this line nothing has come to hand worthy of notice. Yard quotations are nominally \$18 @ \$19 for No. 1 Wrought.

We are reported the following sale as having occurred on the floor of the Metal Exchange since those mentioned in our last issue:

TUESDAY, December 23.
10 tons Tin, Jan. \$0.104

Three steamers came into this port last week from abroad, on which, all told, were only 350 tons of Pig Iron, all of which was consigned to George W. Stetson & Co. The record of importations of Pig Iron for the year just ended shows that they have been the largest importers in that line, surpassing even the oldest houses.

Philadelphia.

Office of The Iron Age, 280 South Fourth St., PHILADELPHIA, December 29, 1884.

The year now closing has been a most unsatisfactory one to the Iron trade. The tendency throughout has been toward lower prices and to a gradually decreasing volume of business. In this respect there has been constant uniformity, although the greatest depression was during the closing months of the year. Various causes have been assigned for this condition of affairs, none of which have been altogether satisfactory, but, whatever the cause, the effects are too evident to be matters of doubt. The question that most concerns business men, and the most difficult one to answer, is, When will the depression end? No one appears to have any satisfactory answer to the question, neither is there anything in the immediate outlook upon which to base any definite opinion. Some say low prices will stimulate business, but, as a matter of fact, the lower they go the smaller the business, from which it may be inferred that low prices simply show that there is only a limited demand. Ultimately, low prices are valuable aids to a revival in business. Buyers find their tools and machinery and other equipments likely to need renewal, and at such times low prices are very attractive, and, as one interest after another comes into the market prices harden, and so on to "a boom" and vice versa. The swing of the pendulum is slow, but uniform, and now it appears to have reached the extreme limit in the direction of low prices. The return movement may not be for some months yet, but it can hardly be much beyond that. Comparison is frequently made with the dull times following the panic of 1873, which continued without intermission more than five years, and the inference is drawn that a similar period must elapse before there can be any improvement this time. The conditions are somewhat the same, but much less strongly marked. There has been no panic and no general exhaustion, and the business position is incomparably stronger than at that time. This, therefore, should be one reason for a quicker recovery. Another reason is that the consumptive capacity is very much greater. Granted that the productive capacity is in proportion, it must be remembered that it is not in operation, and that there are no such accumulations of stocks as in 1874-77. Consequently, it is not unreasonable to expect a reaction quicker than came after the last period of depression. There are no indications of its coming in the first quarter of 1885, and it may not come in the second, but the conditions are favorable for a decided improvement before the close of the year—always providing that nothing unforeseen occurs in the meantime. This opinion is based on the fact of the enormous crops of 1884, which are still to a great ex-

tent to be realized upon. True, prices are low, but that is largely offset by the enormous yield, and, besides that, prices are likely to show continued improvement. Advice from abroad indicate a falling off in receipts of grain at country markets, while the purchases in our markets for foreign account are steadily increasing. The tendency, therefore, may be regarded as favorable to improvement, for the reasons already given, and which may be recapitulated as follows: 1. A sound financial position. 2. Light stocks. 3. Production curtailed, so as to prevent dangerous accumulations. 4. Low prices for all kinds of manufactured articles. 5. Large crops to be realized upon. 6. Prices low enough to secure a foreign demand. 7. Prospects entirely favorable to such demand.

Pig Iron.—Prices during the year have been fairly steady, the decline amounting to an average of \$2 ½ ton on Foundry Irons, and about 50¢ more on Mill Irons. The opening prices in 1884 were \$20 @ \$20.50 for No. 1 Foundry, which quotations were maintained during the first half of the year, after which there was a gradual decline until the first of December, at which date public announcements of \$18 were made for deliveries during 1885. Mill Irons throughout the whole year showed more irregularity than other descriptions, and declined gradually from \$18.50 at the opening in December to \$16 for standard Lehigh brands. The Glendon and Andover companies made a reduction of \$1 ½ ton in February, and an additional \$2 in December, the price of Furnace at the opening of the year being \$19, as against \$16 at the close. Consumption during 1884 was materially less than in the year preceding, although quite large in the aggregate. The depression was greatest in the low grades, owing to the heavy decrease in the demand for manufactured iron, which, with the increasing sales of Southern Iron, made serious inroads into the trade hitherto held by Pennsylvania furnaces. The low price of Red-Short Irons stimulated the demand for that grade of Iron, which was also detrimental to the sale of ordinary Forge Irons. As an offset to these drawbacks, however, the Pipe founders have been pretty constant buyers, and the demand from that source has given valuable support to a weak market. At the close of the year stocks are by no means burdensome, while some of the leading companies have their order-books unusually well covered. There are a large number of furnaces, however, depending upon the demand to absorb their product from week to week, and until the holidays are over and consumption resumed this will be no easy matter. On the whole, the chances seem to be that sellers will be in the majority for some weeks to come, and, while prices cannot go much lower, buyers may be very discriminating in their selection of brands. At the figures now ruling, say, \$16, \$17 and \$18 for the three grades, there is but little chance for outside Irons, unless they can be offered at the usual concessions, which at these low prices is somewhat improbable. Moreover, the reductions recently made by the Lehigh companies indicate their intention of holding trade against all competitors, so that Southern and other outside Irons are likely to have a hard time if they are calculating upon continued shipments to this market. The Coal companies are doubtless supporting the furnaces in this movement, and, although late in doing so, it will be of immense benefit to the local trade. There cannot be much, if any, profit in Pig Iron at the figures now current, but, with proper reductions in Coal and freights, well-managed and well-equipped furnaces ought to be able to hold their trade until the condition of business warrants better prices. Lower figures prevailed in 1878 and 1879, and if it becomes necessary to make another reduction there is no apparent reason why what was possible then should be impossible now. Meanwhile, prices are low enough, and consumption would be no larger if another reduction was announced, but it is a matter of considerable importance to be in a position to meet any and all competition from outside sources. The outlook for the near future is certainly not very encouraging, and while there seems to be a probability of continued dullness for some weeks longer, the chances, on the whole, are rather in favor of improvement later on. This being the prevailing opinion in business circles, the market is naturally quiet, but somewhat sensitive, and in a condition to respond very quickly to influences favorable or otherwise. Meanwhile, the course of events will be carefully scrutinized, but no very important engagements are likely to be entered into until the outlook becomes more settled.

Manufactured Iron.—The year 1884 has been a most unprofitable one in all departments of the Finished-Iron trade. The demand has been from 30 to 40 % less than last year, and with that a corresponding decrease in profits, while in many cases the balance will doubtless be found on the other side of the ledger. This statement tells the whole story, so that there is not much room for further comment. The year opened on a dull and languid market, and, with but two or three brief periods of comparative activity, continued dull to the close. This is evident from the fact that prices have been continually on the down grade, and, while the actual decline was considerably less than in 1883, there is not a single week in which there was a reaction toward better figures. Still the decline was very slow, and only perceptible by comparing quotations several weeks apart. The average for the entire

year is not over \$5 ½ ton, say .02 ½ 100 lb ½ month. This decline, slight as it is, shows the severity of the competition and the insufficiency of the demand, compared with the capacity for meeting it. Plate Iron was quoted at 2.25¢ a year ago, and, although 2.1¢ is the nominal rate to-day, good-sized orders could easily be placed at 2¢. Bar Iron was quoted at 2¢, while the quotation to-day is 1.8¢. Other descriptions of Finished Iron have declined in about the same proportion, and, while there are no immediate indications of returning activity, prices have undoubtedly reached bottom. There may be, and probably will be, some shading done on desirable orders, but it is very unlikely that any quotable change will be made, unless to higher figures. A revival of activity among the leading consumers is ardently desired, and by many of the most experienced men in the trade is pretty confidently expected. With the experience of previous periods of depression, however, there is naturally some hesitancy in naming a date, but the conditions for improvement are favorable, and all that is wanted is something to give it a start. Meanwhile, shipbuilders, carbuilders, locomotive-builders, tank-builders and other large consumers are doing next to nothing, and until they begin to move it is useless to hope for any important increase in the demand for Finished Iron.

Steel Rails.—No department during the past year suffered more severely than the Rail trade. Consumption was little more than one-half the productive capacity, and in the eagerness to secure contracts prices were forced to a point lower than ever known, and probably from \$2 to \$3 below the actual cost of production. The year opened with quotations of \$32.50 at mill, but the price quickly broke to \$30, and with a few ups and downs gradually declined until in August sales were made at \$26. During the last quarter of the year there was a slight recovery, not so much because of any activity in the demand, but rather on account of several of the mills closing up, finding it impossible to secure first cost at the prices offered. Competition, therefore, became less severe, and, while orders are not abundant, \$28 @ \$28.50 at mill appears to be a firm quotation for the general run of orders. The chances of improvement are not unfavorable, as consumption during 1885 is likely to be at least equal to the year previous, and may be a trifle larger, while the mills that are closed are not likely to resume unless orders are more plentiful and prices pretty well up to \$30 as a minimum. On the whole, therefore, there is reason to believe that the opening prices in 1885 will be the lowest of the entire year, and it should cause no surprise to see higher figures—possibly much higher figures—before the year closed.

Mr. E. J. Etting has been appointed sole agent for the well-known Foundry Iron made by the Lynchburg Iron Company, Lynchburg, Va.; and L. & R. Wister & Co. as agents for the Foundry and Mill Iron made by the Princess Furnace, of Virginia, and also for the Mill Irons made by the St. Charles Furnaces, at Columbia, Pa.

Chicago.

Office of The Iron Age, 36 and 38 Clark St., Cor. Lake St., CHICAGO, December 29, 1884.

Hardware.—Christmas week has been very quiet in the Hardware trade. The retail trade having been pretty well supplied with all that is necessary for the moment, buying is virtually suspended. The time of jobbers is occupied in stock-taking and closing up their business for the year, while the heads of houses are examining new articles of manufacture, entertaining sales agents of manufacturers, and in other respects preparing for a revival of business after January 1. The year just closing is not looked upon as having been a very profitable one, though the aggregate amount of business is not much less than last year. All agree that the prospects for the new year are decidedly more favorable than the opening of trade a year ago, and, without considering the losses and reverses of the past, the trade will enter upon the new year in a more cheerful frame of mind than during the past six months.

Barb Wire.—The market has undergone some change since our last report. While there have been but few sales, and those only in small lots, the market is regarded as considerably stronger than it has been for some weeks. The bottom prices appear to have been touched, and manufacturers are unwilling to make contracts to furnish Wire at present prices in quantities for anything except immediate delivery. The action of the manufacturers in St. Louis is looked upon by manufacturers in this vicinity as a movement in the right direction, and they accordingly feel greatly encouraged, with a probability of better prices for Wire to be delivered for spring trade. Quotations on Galvanized continue to be 5¢ and on Painted 4¢, regardless of quantity. On carload lots we hear of quotations ranging from 4½¢ to 4¾¢ for Galvanized, with about 1¢ less for Painted, while it is claimed that 4½¢ is exceptional and would not be accepted by a great many manufacturers for even present delivery. Jobbers and makers in this vicinity report the demand very light, with few inquiries thus far from the heavier dealers for delivery during January and February.

Nails.—Considerable inquiry has sprung up for Nails in carload lots, to be delivered during the next two or three months. Trade for present use is not worthy of mention, and the whole market is quiet. For the reason that Nails have declined very little in the last four or five weeks, and at present are pretty steady at quotations, it is believed that the bottom price has been touched and that a reaction will follow. We learn that some of the most prominent Nail mills in the country will close down if prices go below \$2 at mills. They say that they cannot make the Nails, and, as such reports are pretty general, consumers are asking quotations, and seeking where they can obtain stocks in all sizes, in the event of an unexpected advance. Carload lots are quoted at \$2.05, 2 ½, 60 days, as heretofore, while store lots continue to command \$2.10. Steel Nails are in about the same position as last week, their asking price being about 10¢ to 15¢ ½ keg more than Iron Nails.

Ore.—The Iron-Ore market is regarded as very quiet for this season. A gentleman representing some of the most prominent Ore companies in this and the Cleveland market says that he does not think a single contract has thus far been made for 1885. Furnacemen are unwilling to make an offer, and the Ore companies are unwilling to name a price until future business is more fully developed. It is said that there are about 1,000,000 tons of Ore in Lake ports, about one-half of which is unsold. The Republican Ore Company's price in dock at Cleveland is nominally reported at \$6 ½ ton for such small lots as are being taken for present consumption.

American Pig Iron.—There have been no buyers in the market during the week. Some carload lots were delivered on contracts previously made, but in a general way business has been almost entirely suspended. Numerous inquiries are made for future stocks of Lake Superior Charcoal Irons, but no new contracts have been made for 1885. Southern Irons have weakened considerably during the week, for which no cause is ascribed. There is very little effort made to sell at present, and certainly no anxious buyers. The weakening of the market is said to be very unexpected to furnacemen, who anticipated that the price on Southern Irons would steadily increase, and that a profitable field was before them. There are those in the market at present who claim that they will not sell their Iron at less than \$18, four months, while it is believed that equally good brands are being sold at about \$17. It is still further stated that these figures could be discounted if there were buyers who desired to lay in a stock to carry them over the first six months of the year. In the absence of any demand it is difficult to give definite quotations, but from our best information we make the following quotations, four months: Lake Superior Charcoal, Nos. 1, 2 and 3, \$21.50; Lake Superior Coke, \$20 @ \$21; Cinder, mixed, \$19 @ \$20; Lake Superior and Ohio, mixed, \$20.50 @ \$21; Ohio Standard Black Band, No. 1, at \$21; Southern, No. 1, at \$18 @ \$18.50; No. 2 at \$17 @ \$17.50; Silvery Soft at \$17.50 @ \$19.50. Anthracite Irons are very little used in the West, and from the fact that there is no market and no price we discontinue the quotations on this class of Iron.

Scotch Iron.—The market for Foreign Iron during the week was devoid of interest. There seems to be but one brand (Summerlee), quoted at \$25.50, cash on hand. Glengarnock and Gartsherrie are both reported as having been sold out. As no further importations will be made, the probabilities are that the need of Foreign Irons will be considerably felt before navigation reopens.

Merchant Steel.—The same conditions of the market which have prevailed for several weeks continue in special grades. The demand is considerably better than for that of the lower class, but in no way is there a trade that gives any importance to price or demand. Flow Steels have been decidedly more active. Many of the Flow-makers have been placing orders, and others are making inquiries and preparing to order after the 1st of January. We continue the following quotations for Best Refined brands from store:

	Per pound.
Best Refined Cast Tool Steel	54¢ @ 54½¢
Crucible Cast Machinery Steel	52¢ @ 52½¢
Open-Hearth Machinery	34¢ @ 34½¢
Bessemer Machinery	29¢ @ 30¢
Open-Hearth Spring Steel	34¢ @ 34½¢
Toe-Calk Steel	34¢ @ 34½¢
Fire-Box and Boiler Steel	24¢ @ 24½¢
Sled Shoe Steel, plain	2.35 @ 2.4¢
" " curved	2.5 @ 2.6¢
Syndicate Steel	0 @ 6½¢

Steel Rails.—In the absence of demand, and the unwillingness of mills to make a price, we continue a nominal quotation of \$29 @ \$30. Brokers report that they would be able to place contracts at less than these figures, but railroads are unwilling to make advances, and both parties seem content to bide their time.

Old Rails.—There has not been a sale during the week that we can learn of. It is stated that the supply is light, and a nominal quotation of \$17 would not be accepted by those who have quantities on hand and are not pressed for cash. The prospect of several of the mills in this vicinity making Steel Shapes is sufficiently bright to be a strong inducement to brokers to hold the Rails that are now in their hands.

Structural Iron.—Nothing new to report. We continue the following quotations, with ½¢ @ ½¢ added for delivery from stock: Beams, \$3.60; Channels, \$3.60; T Iron, \$3; Angle

Wrought and Cast Scrap.—Nothing

Anging Rock, Cold-blast.....	25.00	2	50.00	
" Warm-blast.....	21.00	2	42.00	W

ek are also too late.

monitors used in the American war. 1874—
9-inch plates penetrated by 9-ton (Wool-
rich pattern) guns with projectiles of 200

lattery or other process that deposits the metal employed upon the surface. (Letter collector of customs at New York.)

	FIG IRON.		
Southern Coke, No. 1 Foundry.....	\$17.50	@	16.80
" " " " " " " "	16.00	@	15.50
Hanging Rock Coke, No. 1 Foundry			
" " " " " " " "	18.00	@	18.80
Hanging Rock Charcoal, No. 1 Foundry			
" " " " " " " "	91.50	@	92.00
Southern Charcoal, No. 1 Foundry	18.00	@	17.00
Silver Gray, different grades	18.00	@	17.00
Southern Coke, No. 1 Mill, Neutral	14.00	@	14.50
" " " " " " " "	14.00	@	13.50
" " " " " " " "	13.00	@	12.50
" " " " " " " "	12.50	@	14.00
Southern Charcoal, No. 1 Mill.....	18.50	@	17.50
White and Mottled, different grades	13.00	@	18.00
Southern Car-Wheel, standard brands.....	25.00	@	26.00
Southern Car-Wheel, other brands	21.00	@	23.00
Hanging Rock, " " " " " " " "	21.00	@	23.00
" " " " " " " "	21.00	@	23.00

Trade Report.

General Hardware.

With the last week of the year come some announcements of changes in price, as noted below, but among manufacturers generally there is a disposition to await the opening of the new year before establishing prices for the coming season. The impression prevails that there will not be as many revisions of lists and discounts as usual at this season, prices being already in most lines very low. With the close of 1884, with its shrinkage in price of goods and somewhat disappointing trade, there is a more confident feeling, and the hope is expressed that the new year will bring with it better times and more remunerative business. To secure this manufacturers and merchants are making their plans and perfecting their arrangements, in which laudable endeavor they have our best wishes for their complete success.

THE AMERICAN SCREW COMPANY,

Providence, R. I., as announced in detail below, issue under date of January 1 a new Screw list and revised discounts on their whole line of goods. The necessity for the revision of the list is in the fact that the old list of December 27, 1882, has many inequalities, and has, therefore, caused manufacturers who have used it much inconvenience and annoyance. This list, as well as the various lists in use in recent years, has been made, we believe, upon the basis of the original "19-cent list," and variously modified according to circumstances. We need not, however, remind the trade that this "19-cent list," which was in use for so many years, and which is indeed so old that some uncertainty exists respecting its origin, was adopted at a time when Screw-making was pursued under different circumstances and with different methods from those prevailing now, and hence bears no accurate relation to the present cost of manufacture. Under the list of December 27, 1882, which has been in use since that date, manufacturers have been called upon to make some goods at greater or less loss, and have had to depend upon the profit secured from other sizes to make this loss good. From this cause much embarrassment has been experienced by manufacturers, it being necessary to scrutinize large orders before making close figures, and the trade will recognize that there is sufficient reason for a revision of the list based upon the present cost of production. In view of the fact that a change of lists sooner or later has been regarded as inevitable, the American Screw Company have deemed the present an advantageous time for such change, inasmuch as prices are low and stocks are at a minimum. They advise us that the new list for Iron and Brass Screws is based upon the present cost of manufacture, ascertained after elaborate calculations carried over a series of months at one of their mills. They therefore express the hope that the list thus determined will not require further modification.

An examination of the new list for Iron Screws, as compared with the old, shows that the lists average about the same, the smaller sizes being advanced and in some cases very materially, while the larger sizes are generally reduced. We infer that on a representative order a certain discount, say 80 per cent., taken from the new list, will not about the same amount as the same discount taken from the old list, so that the reduction in price about equals the difference between the old and the new discount. The aggregate of the new list prices is less than the aggregate of the old list prices. The American Screw Company's revised lists for Iron and Brass Screws are printed in another column.

While the lists will be scrutinized by the trade with very careful attention, noting the sizes that have been advanced or reduced, the discounts which are printed below, as given by the American Screw Company, on these new lists, as well as on the other goods of their manufacture, the list prices of which are unchanged, will receive special attention from the trade. It will be seen that the discount on Wood Screws is fixed at 80 per cent., and that the "Continental," or second quality, are offered at discount 85 per cent.

The Screw market having been, as our readers are aware, considerably demoralized of late, it is probable that at the lowest prices which have prevailed some of the companies have been losing money. The hope having been entertained in some quarters that a combination among the manufacturers might be effected, efforts have been made in this direction, but they have thus far failed, and there appears little prospect of an agreement among them. A remedy for the present demoralized condition of the market might be found in a limiting of production to the wants of the trade, but it remains to be seen whether the companies can come to any agreement in regard to this matter.

We give below the discount sheet of the American Screw Company, Providence, R. I., dated January 1, 1885. It will be perceived that not only the discounts on Screws are altered, applying to the new list, but that the whole range of quotations on Machine Screws, Bolts, Rivets and miscellaneous goods is changed, important reductions in nearly all these lines being announced:

Wood Screws.		Dis. per cent.
Iron, Bright, Flat Head.....	75&10	80
" Round Head.....	75&10	80
" Blued, Flat Head.....	75&10	80
" Round Head.....	75&10	80
" Felloe, Flat Head.....	75&10	80
" Pitched Head.....	75&10	80
" Japanned, Flat Head.....	75&10	80
" Round Head.....	75&10	80
" Tinned, Flat Head.....	75&10	80
" Lacquered, Flat Head.....	75&10	80
" Round Head.....	75&10	80
" Bronzed, Flat Head.....	75&10	80
" Round Head.....	75&10	80
" Continental, Flat Head.....	75&10	80
" Round Head.....	75&10	80
Brass, Flat Head.....	75&10	80
" Round Head.....	75&10	80
" Lacquered, Flat Head.....	75&10	80
" Round Head.....	75&10	80
" Bronzed, Flat Head.....	75&10	80
" Round Head.....	75&10	80
Copper, Flat Head.....	75&10	80
" Round Head.....	75&10	80
Bronze, Flat Head.....	75&10	80
" Round Head.....	75&10	80
Phosphor Bronze, Round Head.....	75&10	80
Machine Screws, Bolts, Rivets and Miscellaneous Goods.		
Machine Screws, Iron, Flat Head.....		Dis. per cent.
" Round Head.....		80
" Fillister Head.....		80
" Brass, Flat Head.....		80
" Fillister Head.....		80
Cap Screws, for Locks.....		80
Side Knob Screws.....		80
Taps, for Machine Screws.....		80
Tire Bolts, Norway Philadelphia.....		80
" Eagle Philadelphia.....		80
" Bay State.....		80
Sleigh Shoe Bolts.....		80
Stove Bolts, Flat Head.....		80
" Round Head.....		80
" Nickel Plated.....		80
Stove Rods.....		80
Sink Bolts.....		80
Pointed Wires.....		80
Tapped Nuts.....		80
Rivets, Ordinary, in bulk.....		80
" Copper.....		80
" Thousand.....		80
" Thousand, in Papers.....		80
" Block and Carriage, in Papers.....		80
" Hame.....		80
" Belt, with Burrs.....		80
" Bay State.....		80
Burrs, for Rivets.....		80
Coast Screws.....		80
Hand Rail Screws.....		80
Dowel Screws.....		80
Wire Goods.....		80
Wire Nails, Iron.....		80
" Iron Escutcheon.....		80
Fence Wire, Plain Annealed.....		80
Special Goods.....		80

† Add 2 1/2 per cent. to net amount of invoice.
* On items where discount is not given, quotations will be submitted on application stating quantity and assortment required.
Any party purchasing and receiving \$350 worth or more of Iron Rivets and Burrs at above price during the six months ending June 30 or December 31, will be entitled to an additional discount of 1/4 per cent.
Terms, cash, 30 days.
Freight paid on shipments weighing over 100 pounds; on Rivets to principal cities on or east of Mississippi River; on other goods to all points to which rate does not exceed 50 cents per 100 pounds. Discount subject to change without notice.

BARB WIRE.

The immediate demand for Barb Wire, under the circumstances, could not be expected to attain very large dimensions. With the passage of the holiday season, however, and the opening up of the new year, there is reason to suppose that business will improve considerably. There are inquiries in the market now that denote an inclination on the part of buyers to lay in stocks in the near future. The manufacturers are consulting with one another over the proposed pooling arrangement, and the indications at present favor a perfect agreement on this point, especially among those who control the greater part of the Eastern market. They are still refusing to take orders for delivery after the new year opens at present prices, hoping to be able to secure an advance. We continue to quote as before: Carload lots, 4 1/4 cents to 5 cents per pound for Galvanized Four-Point, delivered in New York, and small lots at 5 cents to 5 1/4 cents per pound; Painted Four-Point is sold 1 cent per pound lower than Galvanized.

NAILS.

The holiday dullness which we noted last week still continues, very few dealers reporting sales of any consequence. The export trade is also quiet. A large number of the factories are closed for the holidays, and the representatives of some of them say that in the present condition of business they will not be in a hurry to start up again after the holidays have passed. Factory agents manifest no special eagerness to sell, but are taking matters calmly. In the absence of pressure to realize, prices show no change from those reported last week, which are from \$2.05 to \$2.10 for ordinary lots from New York store, with \$2 named as the price of largest lots or to best buyers. Steel Nails still sell from 5 to 10 cents above Iron Nails, with the demand in the same condition as that for Iron.

The table of Nail prices which we recently published has attracted much attention, and the desire has been expressed to see the quotations carried a few years further back. We have, therefore, compiled the following list of variations in price of wholesale lots from New York store from 1870 to 1877, inclusive, which, taken in connection with the figures previously published, will cover a range of 15 years:

Jan. 6.....	\$4.75	Feb. 12.....	4.80
March 10.....	4.60	March 13.....	5.05
" 24.....	4.50	April 10.....	4.85
April 28.....	4.35	May 15.....	4.75
June 9.....	4.25	June 18.....	4.50
Sept. 8.....	4.50	Dec. 4.....	4.35
Dec. 20.....	4.37 1/2		
1871.			
March 9.....	4.40	Jan. 8.....	\$4.00
April 6.....	4.35	April 30.....	3.90
May 4.....	4.75	" 25.....	3.85
July 6.....	4.25	July 9.....	3.75
Sept. 14.....	4.50	August 30.....	3.70
Nov. 2.....	4.65	Sept. 31.....	3.65
1872.			
Jan. 18.....	4.75	Oct. 22.....	3.00
Feb. 22.....	5.00	Nov. 19.....	3.50
March 14.....	5.25	Dec. 24.....	3.40
April 4.....	5.75	1875.	
August 22.....	5.30	Feb. 18.....	3.35
Sept. 12.....	5.25	March 18.....	3.20
Dec. 12.....	5.50	August 12.....	3.20
1878.			
Jan. 2.....	5.00	Sept. 2.....	3.15
" 15.....	4.80	Oct. 16.....	3.10
" 30.....	4.70	Oct. 28.....	3.00
		Jan. 13.....	2.90

March 2.....	2.55	Feb. 22.....	1877.	2.75
" 25.....	2.75	March 29.....		2.85
May 18.....	2.55	April 19.....		2.80
June 1.....	3.00	" 26.....		2.50
Nov. 25.....	2.90	June 7.....		2.40
		Dec. 27.....		2.40

TACKS.

The Tack manufacturers announce under date January 1, 1885, as a new article of manufacture, Steel Carpet Tacks, 6 to 16 oz. inclusive, flat and oval heads, and of special uniform weights, at the following prices, subject to a discount of 50 per cent., and their regular cash and quantity discounts additional:

Blued.....	Per doz.
Bright.....	\$0.37 1/2
Tinned.....	.50
Coppered.....	.50

THE COVERT MFG. CO.,

West Troy, N. Y., have issued their illustrated catalogue and price list bearing date January, 1885, which is to supersede all former issues. This pamphlet, which has been sent very generally to the trade, contains not only the well-known line of goods of this house, but illustrates also the new articles they have recently added, including considerable additions to their Chain department, which contains now their Patent Breast Chain, Long or Short Snap, Chain for hitching posts, their new Patent Halter Chain, Martingale Chain, Rod Post Hitcher, Cow Tie, Running or Back Cart Chain, Heel Chains and Traces. They refer to this catalogue as being thus the most complete of any yet issued by them. Any dealers who have not received a copy of it can procure one from the manufacturers, who also intimate that they shall be pleased to furnish them in quantity, free of postage, for the use of jobbers or parties handling the goods. They also issue the following sheet of retail discounts, in which our readers will observe some changes:

Loop Harness Snaps.....		Dis. per cent.
" New Loop Harness Snaps.....		85
" New R. E. Harness Snaps.....		80
Martingale Loop Snaps.....		50
Round Eye Swivel Snaps.....		50
Round Swivel Snaps.....		50
Snap and Thimble.....		50&10
Thimbles.....		50&10
Round Eye Snap.....		50&10
Open Eye Snap.....		40
Strap Eyes.....		40
Leather Horse Tie.....		35
Web Horse Tie.....		35
Horse Tie, Snap and Thimble (Jute).....		50&10
Horse Tie, Snap and Thimble (Hemp).....		50
Horse Tie, Snap and Thimble (Jute).....		50&10
Cattle Tie, Snap and Thimble (Hemp).....		50
Lariat Tether.....		50
Picket Pins.....		40
Horse Tie, O. K.....		50&10
Cattle Tie, O. K.....		50&10
Web Halter.....		50&10
Rope Halter.....		50&10
Halter Leads (Hemp).....		50
Halter Leads (Jute).....		50&10
Hitching Cord.....		35
Web Cord.....		35
Hitching Weight.....		35
Driving Reins.....		40
Hammock Ropes.....		60
Bull Lead.....		40
Bull Snap.....		40
Soldering Irons.....		50
Soldering Coppers.....		50
Breast Chain, Short Snap.....		35
Lengthening Snaps.....		35
Open Eye Breast Chain Snap.....		35
Breast Chain, Long Snap.....		35
Breast Chain, New Patent.....		35
Post Chain.....		50&10
Halter Chain.....		50
Rod Chain.....		50
Martingale Chain.....		50
Rod Post Hitcher.....		50&10
Chain Cow Tie.....		35
Back or Cart Chain.....		35
Web Chain.....		35
Long Trace Chains.....		50

MISCELLANEOUS ITEMS.

The Iowa Farming Tool Company, Fort Madison, Iowa, issue a circular describing a Wooden Hay Fork which they have recently added to their line. They make the points that the times, being of wood, will not injure an animal, and that the fork is very light. It is made of a single bar of tough second-growth white ash, finished by hand, and varnished, making, as they say, a tidy, neat and strong tool.

The Kelsey Cartridge Company, New Haven, Conn., who are not members of the association of the manufacturers in this line, are offering Brass and Paper Shot Shells at prices somewhat lower than the regular goods.

The Henry Seymour Cutlery Company, 84 and 86 Chambers street, advise the trade that in future all the first-quality Japanned Handle Shears and Scissors of their manufacture will have nickel-plated blades, for which no additional charge will be made.

Bigelow & Dowse, Boston, in a circular relating to the Eastern Roller Skates, refer to them as cheaper, lighter and more durable than wood top Skates, and claim that, while they are the cheapest rink Skates in the market, they are especially adapted for polo players or where Skates are to have very hard usage.

The partnership heretofore existing between E. T. Fraim and M. W. Fraim, under the firm name of Fraim & Brother, Lancaster, Pa., has expired by limitation. By mutual consent the business will be carried on as heretofore by E. T. Fraim. The retiring partner, in expressing his appreciation of the favor of the trade which has been extended to the firm, hopes that the pleasant relations will be continued to his successor. In announcing this change E. T. Fraim takes occasion to mention that he controls, owns and uses all valuable patented improvements in Jail Locks, and is enabled to guarantee all Locks as to quality and stability.

The following are the list prices as well as the discounts on the Shears of the Acme Shear Company, Bridgeport, Conn.:

The Acme Shear—Full Nickel-Plated.	
Size, Inch.....	6 7 8 9 10
Price per doz.....	\$1.35 1.50 1.75 2.00 2.25
The Diamond Shear—Plain, Full Nickel-Plated.	
Size, Inch.....	6 7 8 9
Price per doz.....	\$1.20 1.40 1.60 1.75 2.00
Discount 10 and 10 per cent.	

AMERICAN SCREW COMPANY'S IRON WOOD SCREWS.

List of January 1, 1885.

1/4 inch.	3/8 inch.	1/2 inch.	5/8 inch.	3/4 inch.	7/8 inch.	1 inch.
No.	No.	No.	No.	No.	No.	No.
0.....\$0.40	1.....\$0.40	2.....\$0.40	3.....\$0.40	4.....\$0.41	5.....\$0.42	6.....\$0.45
1......40	2......40	3......40	4......40	5......42	6......45	7......50
2......40	3......40	4......41	5......41	6......44	7......47	8......52
3......41	4......41	5......42	6......42	7......45	8......49	9......54
4......41	5......41	6......42	7......42	8......47	9......51	10......57
5......41	6......41	7......42	8......42	9......48	10......55	11......61
6......42	7......42	8......43	9......43	10......52	11......58	12......66
7......42	8......43	9......45	10......45	11......55	12......62	13......70
8......42	9......45	10......49	11......49	12......59	13......66	14......75
9......43	10......49	11......52	12......52	13......63	14......71	15......81
10......46	11......52	12......56	13......56	14......67	15......76	16......86
11......47	12......56	13......61	14......61	15......71	16......81	17......92
12......47	13......61	14......66	15......66	16......76	17......86	18......98
13......48	14......66	15......71	16......71	17......81	18......91	19......1.11
14......48	15......71	16......76	17......76	18......86	19......96	
15......49	16......76	17......81	18......81	19......91	20......1.01	
16......49	17......81	18......86	19......86	20......96		
17......50	18......86	19......91	20......91			
18......50	19......91	20......96				
19......51	20......96					
20......51						

The following varieties of Iron Screws are invoiced from above list at varying discounts: Flat, Round, Piano, Filletster and Oval Head Screws, Dowel and Felloe Screws, Bright, Blued, Bronzed, Japanned, Lacquered.

BRASS WOOD SCREWS.

List of January 1, 1885.

1/4 inch.	3/8 inch.	1/2 inch.	5/8 inch.	3/4 inch.	7/8 inch.	1 inch.	1 1/8 inch.
No.	No.	No.	No.	No.	No.	No.	No.
1.....\$0.53	2.....\$0.58	3.....\$0.59	4.....\$0.74	5.....\$1.01	6.....\$1.10	7.....\$1.47	8.....\$1.73
2......53	3......61	4......64	5......83	6......1.16	7......1.27	8......1.73	9......2.07
3......58	4......67	5......70	6......93	7......1.35	8......1.48	9......2.07	10......2.43
4......62	5......71	6......78	7......1.04	8......1.53	9......1.68	10......2.43	11......2.83
5......67	6......79	7......86	8......1.22	9......1.73	10......1.91	11......2.83	12......3.16
6......71	7......86	8......95	9......1.38	10......1.95	11......2.14	12......3.16	13......3.51
7......78	8......95	9......1.09	10......1.57	11......2.18	12......2.40	13......3.16	14......

Blacksmiths' and Machinists' Supplies, Rubber and Leather Belting, Packing, Barb Wire, Glass, Sashes, Doors, Blinds, Screens, &c. But as most houses do not sell all these goods, the lines on which their stocks mainly vary are not bound in the volume, but 84 extra pages are sent in separate sheets, so that each house can insert such as are needed to complete their stock. The book thus issued is an improvement on that offered last year, the interleaving paper being extra heavy and appropriately ruled for convenience in marking prices. The printed portion of the book represents, it is stated, goods of more than 200 manufacturers, which are represented by nearly 1600 illustrations, the list prices not being given usually, but to be inserted in the blank pages which are found facing all the printed pages. For the convenience of the trade, however, some of the important lists, as the Screw and Bolt lists and others, are given in the supplementary pages to which we have referred. Our readers will from this description readily perceive the object and usefulness of this catalogue. In addition to its utility for buyers, who will be able to make use of it for recording the price of goods and noting side by side quotations from different manufacturers, it is intended especially for traveling salesmen, who have been obliged in many cases to make their own catalogue or price book from whatever materials they could get from circulars, various-sized lists, &c. The point is made that, compiling their books in this way, the pages were not uniform in size, and frequently it was necessary to show goods they did not sell to secure a desirable cut on the same page of something that they did sell. In addition to the inconvenience of such books a further disadvantage is mentioned that, considering the value of the travelers' time, they were frequently very expensive. To meet this want of the trade as well as others the present catalogue is offered. As will appear by the advertisement on page 24, it is furnished in different styles of binding and with different interleaving, according to the desire of the purchasers, and at a cost of from \$5 to \$8 per copy, in compact form and strongly bound for rough use. We may add that special prices are given to houses ordering six or more copies at one time. But further particulars relating to this admirable compendium of Hardware will be found in the advertisement above referred to.

THE ANSONIA BRASS AND COPPER CO., 19 and 21 Cliff street, New York, under date of December 22, 1884, announce changes in price of O'Neill's Patent Plated Sheet Copper and O'Neill's Patent Nickel-Plated Sheet Copper, as stated below, the prices given being net cash:

O'Neill's Plated Sheet Copper.	
14 x 48.	Cents per pound.
14 and 16 ounces and heavier.	30
By the case.	29
12 ounces and lighter.	33
By the case.	32
Boiler Sizes.	
7 inches, 14 x 52; 8 inches, 14 x 56; 9 inches, 14 x 60.	
14 and 16 ounces and heavier.	31
By the case.	30
(And all sizes not over 30 inches wide.)	
24 x 48 and 30 x 60.	
14 and 16 ounces and heavier.	34
12 ounces.	37
Plated Brass same price as Plated Copper.	
Tinning.	
14 x 48, by the case.	8
14 x 48, less than case.	10
Boiler sizes, 7 and 8 inches.	12
9 inches.	15
Cents per square foot.	
Other sizes not larger than 30 x 60.	24
Larger than 30 x 60.	25
Silver-Plated Sheet Copper for Amalgamating.	
Prices furnished upon Application.	
O'Neill's Patent Nickel-Plated Sheet Copper.	
(We charge the Copper by weight and add for plating by the sheet or square foot.)	
Sheets 14 x 48 inches.	
	Per pound. Plating per sheet.
14 and 16 ounces and heavier, by the case of 500 pounds and over.	30¢ 15¢
14 and 16 ounces and heavier, less than one case.	34¢ 16¢
12 ounces and lighter, by the case.	35¢ 15¢
one case.	87¢ 16¢
Boiler Sizes.	
Over 12 ounces, by the case of 500 pounds, 7 inch, (14 x 52).	34¢ 18¢
Over 12 ounces, by the case of 500 pounds, 8 inch, (14 x 56).	34¢ 19¢
Over 12 ounces, by the case of 500 pounds, 9 inch, (14 x 60).	34¢ 21¢
For less quantity than one case, add 2 cents per pound; 12 ounce and lighter, add 3 cents per pound.	
Other sizes not over 30 inches wide.	
	Per pound. Plating per sq. ft.
Over 12 ounces, by the case of 500 pounds.	34¢ 3½¢
12 ounces and lighter, by the case of 500 pounds.	37¢ 3½¢
For less quantity than one case, add 2 cents per pound.	
Sheets 24 x 48 and 30 x 60 inches—And other sizes over 30 inches wide.	
	Per pound. Plating per sq. ft.
Over 12 ounces.	35¢ 3¢
12 ounces and lighter.	38¢ 3¢
For Plating larger than 30 x 60 sheets.	6¢

Pittsburgh.

Office of The Iron Age, 77 Fourth Avenue, Pittsburgh, Pa., December 30, 1884.

The general business situation remains unchanged. A good many of our manufacturers will shut down during the first half of January to take stock and make repairs, and it is expected that the business of the year will be found to have been very unsatisfactory; many will be well satisfied to discover that they have held their own. At an informal meeting of Iron and Steel manufacturers the other day the discussion on the state of trade was taken up, particularly in regard to Steel Rails. It was brought out during the discussion that the only Rail mill in operation west of the Allegheny Moun-

tains was the one at Joliet. The opinion entertained by all the gentlemen in this conference was that a reduction in the wages scale was absolutely necessary in order to allow the mills to run at a profit. It was also brought out during the discussion in question that the Edgar Thomson Rail Mill, which has been standing idle for some weeks, will not be started up again until the employees are satisfied to accept a reduction of 10% on the present scale. The discussion drifted from the Steel-Rail trade to the June scale, and as to what reduction would be necessary to allow the mills here to successfully compete with those located elsewhere having cheaper labor. Some expressed the fear that the Amalgamated managers would enlist public sympathy by offering a smaller reduction than it will be possible for the mill owners to accept. The cost of the production of Iron in this city was also talked over in an informal way, during which a bitter feeling was developed against the railroads for excessive rates charged for transporting raw material, and how to remedy the matter was a problem the conference was not able to solve. The subject of founding a syndicate or association with a view to obtaining a reduction in the cost of Ore at the Lakes, as well as more equitable freight rates, was also discussed.

Iron Ore.—There is little or no demand for Ore, and not likely to be soon. Usually a good many furnacemen contract about the 1st of the year for a three or six months' supply, but the indications are that, unless the price is materially reduced, the demand will continue as it has been for several months past. Furnacemen claim that Lake Ores are higher relatively than Pig Iron, and it is intimated that unless there is a reduction made Congress will be asked to reduce the duty on Foreign Ores.

Pig Iron.—The demand continues exceedingly light and there is but little prospect of any immediate improvement. Consumers, almost without exception, will close the year with very small stocks, and it is to be expected in the present condition of affairs that they will not, for a time at least, feel like anticipating future wants. While prices have not varied much for several weeks, there is no indication of any further decline, nor is it expected that there will be any improvement in price in the near future. Present rates, under the most favorable circumstances, barely cover actual cost of production, and the few furnacemen whose furnaces are still in blast say that rather than submit to any further reduction they, too, will blow out. The indications are that the consumption will continue light for some time to come, and it is almost certain that consumers will adhere closely to the hand-to-mouth policy until the outlook is much better than it is at present in regard to the market for Finished Irons. Some operators look for an increased demand the latter part of January, while others equally well informed, and whose opinions are entitled to fully as much consideration, look for no material or substantial improvement until February or March. Quotations may be fairly given as follows:

Neutral Gray Forge.	\$15.75 @ \$16.25, 4 mos.
All-ore Mill.	17.00 @ 17.50, 4 "
White and Mottled.	14.00 @ 15.00, 4 "
No. 1 Foundry.	18.00 @ 19.00, 4 "
No. 2 Foundry.	16.00 @ 17.00, 4 "
Cold-Blast Charcoal.	25.00 @ 27.00, 4 "
Warm-Blast Charcoal.	22.00 @ 24.00, 4 "
Bessemer Iron.	18.00 @ 19.50, 4 "

Muck Bar.—There have been no sales reported for several weeks, in the absence of which we quote nominally at \$27.50 @ \$28, cash. There does not appear to be much offering, but there is little or no demand.

Manufactured Iron.—There has been no material change in the situation during the past week. Some of our manufacturers say that in all their experience they never knew business to be worse than it is now. One of the great sources of complaint is the cost of skilled labor as compared with that paid for the same work east of Pittsburgh, which enables Eastern manufacturers to compete with those of Pittsburgh in Western markets. Prices are still quoted on a basis of 1.65¢ @ 1.75¢, 60 days, 2% off, for Bars for selected orders, although buyers say they are able to do better elsewhere.

Nails.—The Nail trade continues exceedingly dull, as it usually is at this particular time, and no improvement is looked for until the spring trade opens up. It is intimated that sales could be made to some of the large Western jobbers by cutting prices, but makers say there is no margin for profit at present rates and that there would be no object in making concessions. We continue to quote at \$2, 60 days, 2% off for cash, in car lots and upward, and so far as we can learn there are no sellers here below the price quoted. In regard to Steel Nails, they are still quoted at 5¢ @ 10¢ higher than Iron Nails, but, where the competition is close, it is said they can be bought at the same price.

Wrought-Iron Pipe.—Business continues dull, with but little prospect of any material improvement until the spring trade opens up. Some of the mills are still in operation, working up orders for Pipe for natural-gas companies, while others are very slack. The National Tube Works, at McKeesport, shut down last week. Prices remain about as last quoted. Discounts on Black Butt-Welded Pipe, 45 @ 45 and 5%; on Galvanized do., 35 @ 35 and 5%; on Black Lap-Welded Pipe, 65%; on Galvanized do., 45 @ 45 and 5%. On Selected Pipe, or Pipe out to

specified lengths, the discount is 5% less than rates above quoted. Two-inch Oil-Well Tubing, 11¢ @ foot; 5½-inch Oil-Well Casing, 37¢ @ 40¢ @ foot.

Steel.—There is no improvement to note in the demand for Merchant Steel, and prices are weak, but nominally unchanged. Best brands of Refined Cast Steel, 9¼¢ @ 10¢ @ lb; do. Crucible Machinery, 5¢ @ 5½¢; Open-Hearth and Bessemer do., 2¼¢ @ 3¢; Steel-Nail Slabs, \$30 @ ton, free on cars at works.

Steel Rails.—No sales and no demand; still quoted at \$28 cash at mill, but could probably be bought for less. The Edgar Thomson Works are still idle, and it is not known when they will be started up.

Old Iron Rails.—The last sale, reported some weeks ago, was at \$19, which may be regarded as the ruling price, but there does not appear to be much inquiry for them.

Old Steel Rails.—Are still quoted at \$16 @ \$17, according to lengths.

Crop Ends.—Steel Rail Ends nominal at \$17.50 @ \$18, and Bloom Ends at \$17 @ \$17.50.

Railway Track Supplies.—Continue very dull, and prices remain about as quoted for some time past, although it is probable that a desirable order could be placed below quotations. Spikes, 2¢, 30 days; Splice Bars, 1.65¢ @ 1.75¢; Track Bolts, 2¼¢ @ 2½¢.

Scrap.—Of all kinds is very dull, and there is so little doing that it is difficult to give reliable quotations. No. 1 Wrought nominal at \$17 @ \$18, net ton; Wrought Turnings, \$14 @ \$15; Old Car Axles, \$24 @ \$25; Cast Boring, gross ton, \$11; Old Car Wheels, \$15 @ \$16, gross.

A System of Harbor Defense.

For our new navy two classes of construction are immediately needed. First, the fast-vanishing wooden vessels should be gradually replaced by a moderate number of swift steel vessels, designed for the same general purpose, namely, the ordinary cruising duties of peace and the destruction of an enemy's commerce in war. The other need is that of some system of naval harbor defense, supplementing land batteries, and specifically designed to sink huge ironclads. Captain Ericsson has proposed one such system of seacoast defense, which consists of carrying submarine artillery, capable of reaching the vulnerable parts of armored ships, in small, inexpensive steel vessels. These vessels, of which one example, the Destroyer, has been built, would be about 132 feet long, 20 feet beam and 11½ feet deep. Each vessel would carry a submarine 16-inch gun, 30 feet long, whose muzzle passes through the stem and is protected from the sea by a valve which can be suddenly opened by steam-power while the vessel is going at full speed. Within the bore is another valve, perfectly water-tight, constructed of only such thickness as to hold the rushing water when the outward valve is opened, while being easily broken by the discharged projectile behind it without material loss of energy. This projectile, which is really a torpedo, is 25 feet long and weighs 1450 pounds, including its explosive charge of 300 pounds of gun-cotton. The gun, it must be remembered, is carried nearly at the bottom of the vessel, and can also be trained up or down in a vertical line as required, and it is evident that such a charge, advantageously exploded against the vulnerable part of the biggest ironclad, is sufficient to shatter the hull.

Such in simple terms is the new Ericsson system of seacoast defense by submarine artillery. As to remaining particulars, the Destroyer, of course, would rush first upon her selected victim until within the effective range of her gun—that is, within 300 feet. For this purpose she is provided with a motive engine of 1000 indicated horse-power, protected under thick armor. Only 12 pounds of prismatic powder are needed for propelling the very heavy projectile through this distance of 300 feet in three seconds; but the perfect combustion achieved by a large air space around the charge, a tight gas check, and the close fit of the piston of the gun which transmits the energy of the powder charge to the projectile torpedo, combine to aid this extraordinary result. It may be added that on striking the hostile vessel the great gun-cotton charge of the projectile is exploded by the firing-pin of a percussion lock. A spiral spring within the projectile, which at only half its tension easily takes up and overcomes the resistance encountered by the firing-pin in piercing the inner valve already spoken of, so that it may not be driven back on the charge, instantly gives way and permits the explosion whenever the projectile strikes a body as heavy as a ship. The Destroyer attacks bows on, and her crew are then protected beneath 2 feet of in clined armor on her bows and 5 feet of timber backing.

Experts have differed about the practicability of the submarine-gun system of the Destroyer, the child of Captain Ericsson's old age, just as they differed about the practicability of the monitor system, the child of his prime of life, and, possibly, about that of the motive power of the Princeton, the triumph of the earlier days of that part of his career which has been devoted to naval engineering. But although doubtful or adverse comments, both official and unofficial, might be quoted, Congress, on the other hand, has the expressed and recent opinion of the admiral of the navy that "Mr. Ericsson has invented the most destructive principle in naval warfare," and the further opinion of the Selfridge Board of Investigation that "the Ericsson submarine torpedo is a projectile of the most formidable character within a limited range," and "within that range is superior to any known form of torpedo."

One of these torpedo vessels would cost \$160,000, so that for \$1,000,000 the six harbors on our coast, whose depth of channel would most readily admit heavy ironclads, could be supplied each with one of them.

The Basin of the Congo.

In a recent interview held with Mr. Stanley at Berlin, Germany, the intrepid African explorer made the following statement concerning the great country which he is opening up to civilization and international trade:

The Congo basin takes in a strip of territory stretching from the west coast across the continent to the Indian Ocean, with a littoral of 385 miles—i. e., from Ambriz to the French Gaboon frontier—on the Atlantic side, and a coast front of 13°, or 780 miles, on the Indian Ocean. We shall at once proceed to build a railroad—by we I mean the International Association—we taking half the stock, and putting the remainder on the market for such capitalists as want to come in. The upper and lower regions of the Congo are navigable, but are broken in two by the falls, making necessary a portage of 235 miles. This portage is, however, somewhat reduced by the fact that for about 70 or 80 miles of it there is navigable water between the falls. This road would extend from Vivi, 110 miles from the mouth of the Congo, to Leopoldville, at Stanley Pool—now a settlement of about 300 persons, all either Europeans or employees of our association. We have a good wagon road all the way to Leopoldville from Vivi, with posts every 10 miles garrisoned by our own paid soldiers. We have already taken four steamboats over the road, in pieces, and put them together again at Leopoldville for use on the upper part of the river. The view at the latter point is beautiful. At the base of the hill under the town are no less than 20 African villages, the chiefs of which are all friendly. The natives have thus far always been friendly, and have given us every assistance. They are the most imitative people in the world—more so even than the Chinese—and they seem to feel a pride in associating with Europeans and adopting their manners and ways. I do not think any danger whatever is even to be apprehended from uprisings or attacks by the natives. Of course, when strangers begin to pour in, as they undoubtedly will, it will be the duty of the association to see that imposition and outrages upon the natives are prevented. The weaker race in this case will not, as in the case of the American Indian, die out. It will assimilate. The Africans are favorable to methods of civilization. I know of 20 or 30 black men who have been for 10 years or more trading with the whites, and who have imported from England three-story iron dwellings costing them each £4000 or £5000, which they have paid in palm oil or palm kernels. They live in these houses with their wives and children, with chairs and tables and carpeted floors, and a great variety of cheap bric-a-brac, mirrors, &c., which they have a passion for acquiring. I know of one German trader, a Mr. Schultz, representing a Berlin house, who makes a regular business in this way. He imports a complete set of parlor furniture, pictures, ornaments, &c., puts them all in place in a room in his house, and then invites a wealthy black to dine with him there. After dinner, the guest admires the surroundings, and is finally permitted, as a favor, to purchase them entire. They are at once removed to an apartment in his English-built dwelling—he pays in oil a good round price—and then the trader sends home an order for another set, invites another guest to dinner, and so on.

Now, let the railroad be built; let there be here and there such hotels as can offer any approach whatever to the comforts of modern life, and provisioned with such food—canned goods are already plentiful there—as Europeans eat, and I will guarantee that 90 to 95 per cent. of a hundred Saxons would be alive at the end of 12 months. There are many localities even in that equatorial region where beautiful scenery, fertile land and a salubrious atmosphere invite settlement. While the 2000 miles of seacoast now opened to trade and settlement are already dotted with European settlements, French, German, English, Portuguese and Dutch—very few Americans—this new arrangement will throw open 10,000 more miles of new water front to similar peopling. Traders will at once pour in there from all parts of the world, and they will be the pioneers, whose influence will gradually extend further and further in, ultimately opening up that entire section of the African continent to civilization and commerce.

Temperature by Telegraph.

Of old, men were content to guess at the temperature and take it as it came, said an electrical engineer in a recent interview. Now they not only conquer nature and compel her to give up her caprices in the matter of heat and cold, but they want an exact indication of what that artificially produced temperature is, and they demand, also, an automatic registering apparatus, so that they can look back over a term of years and see just what the variations have been. It is this want that we have attempted to supply. Suppose that a man has an immense cold-storage warehouse. It is desirable and even necessary that he be able to sit in his office and tell at a glance just what the temperature is in each room and closet of that warehouse, and whether his refrigerating machinery is working evenly, for a rise of temperature at any one point might spoil thousands of dollars worth of provisions stored there. Take the case of a ship with a cargo of fruit, grain or vegetables. Fermentation setting in at any one point would produce heat. Heat, reacting, would accelerate fermentation, and soon half the cargo is ruined. Now, any system of telemetry that could indicate, transmit to some accessible point, and there register the temperature of every portion of the hold, would note the first appearance of decay by a rising temperature, and the gradual destruction of the cargo could be arrested. The scientific uses of the principle are innumerable. Spencer F. Baird is authority for the statement that "surveying vessels of all nations would gladly take hold of any instrument by which the varying record of temperature at different depths could be easily indicated." The principle is simple enough. A thermometer is made of a coil of steel and brass,

welded together in parallel strips, so that the unequal expansion and contraction of the two metals causes the coil to curl up or unwind. By so doing it moves the hand over a dial and indicates the temperature at that point. The next step is to transmit this movement by means of an electric current to another dial placed at any central or convenient point and there register it. The movement of the hand attached to the thermometer makes a contact and completes the circuit of a feeble electric current. This affects a little magnet, and the movement of the latter's armature completes the circuit of a more powerful current, which is transmitted over the wires to the second and registering instrument, where, by means of other magnets, it moves the wheel of an escapement such as will be seen in any clock. This wheel turns the index hand of the second instrument, and, the circuit being automatically broken, matters return to their original condition. Instead of a thermometer, the first indicator may be attached to a barometer, a float in the stand-pipe of water works or anything else which fluctuates within certain limits.

There is little or no originality in the idea. European scientists have been wrestling with the problem for 25 years. But it has been left for American inventive genius to bring it to a practical, every-day, working solution, and to produce an apparatus which can be put into the hands of any man who knows his letters, instead of requiring a trained intelligence and delicate manipulation in its use.

Cause of and Remedy for Stagnant Trade.

George Blair, of New York City, chairman of the Executive Committee of the State Labor Party, has some positive opinions on the cause of the present depression in trade and its remedy, and his leading position in labor circles gives his opinions a good deal of weight. To a reporter of the daily press he recently expressed himself as follows:

"The cause of the existing depression has its origin in overproduction, and dates back some two years. We have the facilities of producing more than we consume in the best of times. Capital for nearly a year lies idle because of the lack of profitable investment. Railroad, agriculture and manufacturing offer no inducements at present; all these properties, with few exceptions, are being run at a loss. Stock-raising pays because of the foreign demand, but, should we look abroad to get rid of our surplus manufactures, we would find it impossible to compete with the cheap labor of Europe. I see no way out of the present depression except to compel all men to work at reduced hours, thus giving all a chance, and for the Government to spend its surplus to employ labor."

"Unless in the direction of protecting American industry, any change in the tariff would only make matters worse. Congress will do best to abstain from any tinkering of the tariff. And that includes Spanish or other treaties in which, in the guise of a bid for foreign markets, the tariff on imports is lowered and our own market placed at the mercy of foreigners. It should not be forgotten that fully three-fourths of our home manufactures are consumed by our own people. Compared to our domestic trade what we ship abroad is insignificant, and it is my opinion that the only effect of such treaties will be to oblige us to compete on our own soil with articles manufactured by European cheap labor. Reductions in the hours of toil are to be effected by legislation. I developed the idea when I appeared before the Senate Committee on Labor. I was told by the assembled Senators that such legislation would be unconstitutional, to which I replied that in that case the Constitution ought to be amended. In England they have an excellent Factory law, under which no person can be compelled to work more than 56 hours per week; children below a certain age not permitted to work at all; older children must go to school at least one-half the year. An inspector is also appointed for life, and from among those whose interest it is to see that the law is enforced, to visit the different factories and to see to it that they are properly ventilated. I have appealed again and again to our Legislature to have that law passed here for the benefit of the laboring classes. I know shops in this city where the men work 72 hours a week, and where children of 7, 8 and 9 years are employed. All this, of course, tends to increase the quantity of goods in stock, which is followed by just such periods of overproduction and depression in prices as that under which we are now suffering. The legislators turned a deaf ear to my requests."

Heat of Combustion of Hydrogen.

It has been found by A. Boillot that of the numbers of calories obtained on the combination of hydrogen and oxygen gases to form water, two-thirds are furnished by the former of these gases and one-third by the latter. The water formed does not absorb any latent heat. For 9 grams of water formed the gram of hydrogen liberates 23 calories, and the 8 grams oxygen 11.5 calories. In the formation of oxygenated water each of the component gases liberates the same number of calories—i. e., for 17 grams of oxygenated water formed from 17 grams of hydrogen gives 11.85 calories, and the 16 grams of oxygen also 11.85 calories. The latent heat of this quantity of oxygenated water is 22.3 calories, of which the half comes from each of the elements. The author deduces from his investigations the density of liquid oxygen as = 0.888. M. Wroblewski found this density as intermediate between 0.89 and 0.9.

George Westinghouse, founder of the Westinghouse Agricultural Works, at Schenectady, and father of the inventor of the Westinghouse air brake, died at Pittsburgh, Pa., December 29, aged 74 years.

Chief Engineer William Lorenz, of the Reading Railroad system, died suddenly December 29, while seated at the dinner table, in his residence in Philadelphia, his death presumably being from heart disease.



L. COES' Genuine and Mechanics, PATENT Screw Wrenches
MANUFACTURED BY
L. COES & CO.,
Worcester, Mass.
ESTABLISHED IN 1839.



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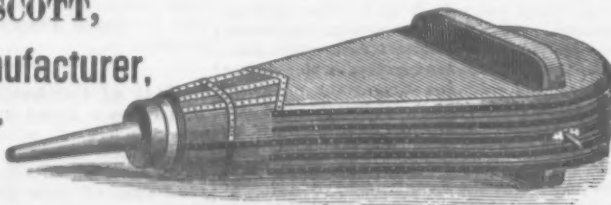
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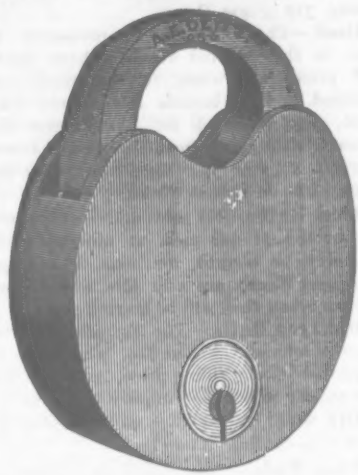
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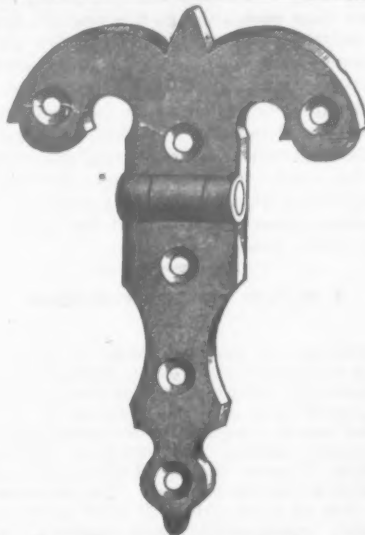


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Has no equal. In fact,
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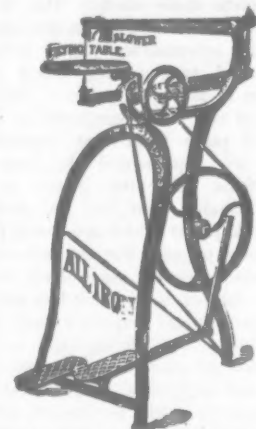
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THE LESTER SAW and THE ROGERS SAW
have held their place against all comers, and are now the standard machines the world over. Since last year we have made FOUR great improvements on these saws—first, a new Rubber Blower, which gives as much blast as is desired; second, a new Clamp, tunnel-shaped, which guides the Saw to its place in the dark; third, a Roller inserted in the table at the back of the Saw, which makes it run as true as those which go in guides; fourth, a new Stretcher Rod, which gives the Saw a perfect adjustment.

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For Blowers, Tire Benders.
All sizes—the most improved and hand-
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PURE TURKISH EMERY.
WALPOLE EMERY MILLS,
South Walpole, Mass.

English Letter.

(From Our Regular Correspondent.)

LONDON, December 15, 1884.

THE SITUATION

remains in very much the same condition as when I last wrote, and the near approach of the holidays is unlikely to do more than give a passing stimulus to a few only of our industries. In the iron and steel trades proper I am unable to do more than report a not very hopeful outlook for next year. As matters now stand there is really scarcely any ground for anticipating an improvement, whereas there are several reasons for fearing that the quietude at the end of this year will be emphasized and exceeded at the beginning of next year. The one thing needful to infuse a little life into the market is a spirit of enterprise and speculation. That is altogether absent; consequently millions of capital are lying idle and earning next to nothing, while at the same time its owners are burning with impatience to get into something in which there is at least the possibility of turning it over advantageously and on a large scale. I suppose it would be quite hopeless to institute a newspaper inquiry into the causes which have led to this result. Taking the fact as it stands, however, we perceive a state of things which is most damaging to British trade, and therefore bad for the trade of the whole world, inasmuch as Great Britain is still the principal buyer of the world's produce and raw materials. In some quarters there is a disposition to attribute the long-continued depression of trade to political causes. Those who take this view allege that we have a weak and vacillating ministry at home, just as France has a ministry which is content to drift anyhow and anywhere, so long as the people at home can be kept quiet by a so-called spirited policy abroad. They urge that both France and ourselves are constantly drifting into foreign complications and little wars, because neither of us is strong enough to "say anything and stick to it." As a contrast they point out the iron-handed methods of Prince Bismarck, who, seeing his chance, is quietly annexing parts of Africa and other places as a means of promoting and furthering the export business of the Fatherland. This new colonial policy of Germany is viewed with surprise by many of our commercial men, as well as by politicians, and the former are probably least satisfied with it, seeing that the Germans make good colonists and are in all respects likely to do better as settlers than the volatile and stay-at-home Frenchmen. Nevertheless, it is very freely conceded that we cannot hope to monopolize the settlement of the at present uncivilized parts of the earth, and we shall be pleased with German progress in that respect, provided we can form some idea of its probable extent. The Germans are an orderly people, and will work, whereas the French are too insufferably conceited and boulevardish to settle amicably near any other civilized race, besides which they do not know how to treat the uncivilized peoples properly. Anyway, all this *über meer* and *outré mers* business on the part of our Continental neighbors gives us abundant promise of continued, and perhaps augmented, competition. There will be no more monopoly for the Britishers, but a steady fight, in which all nerves will be strained and every muscle, speaking metaphorically, will be brought into play, in order to secure a fair share of the spoils.

REASONABLE COMPLIMENTS.

By the time this letter reaches the honors of type and publication in *The Iron Age*, the "festive season" will be in full swing on both sides of the Atlantic. Here we make most of Christmas Day and not so much of New Year's Day, save in Scotland, where the latter is more gaily observed. With you also, I believe, the first day of the new year is a great festival and a universal holiday. I cannot call personally upon your thousands of readers, but by your permission I can wish each and all a

HAPPY NEW YEAR

and a prosperous one in all respects. This is an old English benison, and I trust it will lose none of its intended warmth and sincerity when conveyed in the cold medium of printers' ink.

THE IRON MARKET

remains very quiet in all parts of the country and in almost every branch of the trade. In scarcely any single instance is there anything resembling briskness, while in the great majority of cases short time is the rule, with order-books which are being cleared off far more rapidly than is agreeable to manufacturers. Specifications on running contracts are also given out tardily, thereby showing that buyers and consumers have no faith in the near future, and that they desire to keep stocks as low as possible. The depression which has now lasted so long, indeed, appears to be wholly unrelieved, and there is every prospect of the present year ending under circumstances of anything but a favorable nature. None of the foreign markets are likely to gain strength this side of Christmas, and it seems to be equally hopeless to look for an enlarged demand from our own colonies. Your market is perhaps the most hopelessly situated, inasmuch as the country is settling down after the late fierce political conflicts, and there may be a distinct upward movement in the spring. In the meantime the iron trade here is pretty certain to be exceedingly quiet, and it is highly probable that almost all values may undergo a further depreciation. At Glasgow warrants have been relatively inanimate, with only a moderate amount of business, and closed at £4.2 per ton. Makers' brands are almost all cheaper to the extent of 6d. @ 1/10 ton, except Gartsherrie, which was lowered by half a crown 1/10 ton a week ago. Shipments are not large, and stocks are not being lessened, so that the statistical position on December 31 is not likely to afford much, if any, encouragement to the trade in Scotland and elsewhere.

At Middlesboro' the market is lifeless, and business slow at values which are irregular and subject to special negotiations in almost every instance where any considerable quan-

tity is in question. Nominally, No. 3 is held at 36/3 @ 36/6 per ton, with other numbers *pro rata*. The foreign shipments from the Tees are naturally smaller than they have been, but to Scotland they are good, and it is reported that Cleveland pig iron is being freely stocked by large buyers in North Britain—a fact which to some extent accounts for the reduced price of Scotch special brands. In hematite pigs there is not a great amount of new business reported, but the West Coast smelters are fairly firm in their quotations—which run at 44/6 @ 45/ for mixed lots, prompt, and 45/ @ 46/ for futures—and appear to have faith in the possibilities of the future. On the other hand, buyers of these pigs do not appear eager to close forward contracts so long as the rail mills are in their present condition. For spiegeleisen of 20 % contents, our current rates vary between 72/6 and 80/ per ton. In some quarters the by-products of this manufacture are being successfully treated and disposed of at figures which add appreciably to the economy of production. From all the other smelting districts reports are couched in terms indicative of quietude, the demand being somewhat poor and the make outside the consumptive requirements of the markets. In the heavy branches of the manufactured-iron trade there is no life, but at Sheffield there is the expectation that the augmented expenditure on the navy will add to the activity of the armor-plate mills. Fencing wire and galvanized iron are dull, and there is again a good deal of vigorous competition in the latter line of goods.

Ordinary finished iron is still irregular in all directions, and few new orders of moment are being given out. Prices as publicly quoted are misleading, but ordinary Welsh bars are called 24/ 17/6 @ 25 per ton, less 3 %, for usual sizes and assortments, and Staffordshire marked bars, 27 @ 27.10, with all sorts of prices between these two limits for intermediate qualities. Old rails are scarce, and in comparatively good request, D. H. iron being 52/6 @ 55/; No. 1 heavy wrought scrap, 42/ @ 44 for picked lots; old boiler tubes, 47/6 @ 52/6, and old cast scrap, 40/ @ 44/ all per ton, f.o.b. London or other good British port, for net cash. Freight rates are about as last week, but open rates are largely nominal, and shippers generally have the best side of a bargain. To Australia, however, freight rates are fairly steady. Steel continues quiet and without alterations of moment. The few weeks immediately preceding Christmas, which are usually characterized by extreme activity at Sheffield, are this year likely to be quiet, except in those cases where stock is being accumulated or where specialties are produced. The Bessemer concerns are not pressed with work, but the Siemens establishments are moderately well engaged. Old railway leaf-spring steel is quiet at about 53/6 per ton, net cash. Crop ends for remelting purposes are scarce, and are called 52/6 per ton, f.o.b. Welsh, &c., ports. Steel rails are again without features to note, prices being as before, and new business by no means abundant.

SCOTCH PIG IRON

is almost featureless, and has been dull all the week. The large imports into Grange-mouth (Scotland) of Middlesboro' pigs are attracting attention, but it is believed that the only explanation is that they are being made in anticipation of the possible stoppage by frost of the canal navigation. Last week the importations of this class much exceeded the exports of Scotch pig. There are now 93 furnaces in blast in Scotland, as against 102 a year ago, and the stock in Connal's stores is 579,408 tons (a decrease of 381 tons last week) against 583,147 tons this date 1883. Shipments to date are 101,479 tons behind, while Middlesboro' pig-iron importations have increased by 1246 tons. Current prices are about as under:

Deliverable alongside.	No. 1.	No. 2.
Gartsherrie, at Glasgow	52/6	47/9
Coltness, " "	57/	52/6
Langloan, " "	57/	52/6
Summerlee, " "	58/6	47/8
Calder, " "	58/	48/
Cambroo, " "	49/6	47/
Clyde, " "	47/6	44/
Monkland, " "	44/	41/3
Quarter, " "	42/6	41/
Govan, at Broomfield	42/9	41/8
Shotts, at Leth	55/6	52/6
Carron, at Grangemouth	49/	45/6
selected	52/6	47/9
Kinnell, at Bo'ness	45/	44/
Glengarnock, at Ardrossan	49/6	48/8
Eginton, " "	44/	41/3
Dalmellington, " "	48/	44/6

MIDDLESBORO' PIG IRON

is exceedingly dull, and only a very limited amount of new business is being transacted. Nominally, No. 3 has come down to 36/; but there are rumors of even lower figures in second hands. Unless some improvement should speedily take place in the North of England there will be trouble for somebody shortly. For G. M. B., f.o.b. at makers' wharves in the Tees, net cash, less 3 % on 10th of following month, rates are:

No. 1 Foundry	39/	Mottled	39/9
" 2 "	37/6	White	39/3
" 3 "	36/	Refined Metal	32/6
" 4 "	34/3	Kentledge	39/6
" 4 Forge	34/3	Cinder	32/6

HEMATITE PIG IRONS

alone of all the different grades of crude iron are fairly steady, although it takes a smart man to see why the smelters should endeavor to run up their prices. Mixed lots are 44/6 @ 45/; and West Coast makers' brands are:

	No. 1.	No. 2.	No. 3.
Cleator	46/	45/6	45/
Lonsdale	46/6	45/	44/6
Workington	45/	44/6	44/
West Cumberland	45/	44/6	44/
Lowther	45/	44/6	44/
Distington	45/	44/6	44/
Harrington	46/	45/	44/6
Solway	45/	44/6	44/
Maryport	45/	44/6	44/

TIN PLATES.

It is too near Christmas to expect much alteration in business before the end of the quarter, and therefore it does not indicate much that buyers have shown no more disposition to business this than last week. Most of the works are pretty well booked up to the end of the year, but few of them have sufficient orders to carry them far over into January. Practically, the London market is as it was at the time of my last report, and though I hear of exceptional transactions in ordinary cokes at a trifle below 14/3, I can

only repeat last week's rates as the market quotations, viz., 14/3 @ 14/9 for IC cokes, f.o.b. Liverpool. At Liverpool there is still no lack of business offering—in fact, the inquiry is growing daily—but prices are stationary. The fact is patent to everybody interested in the trade that it is now simply a case of overproduction as regards tin plates. Under ordinary circumstances the demand of this week would be considered a good one and a brisk business would result, but whatever the demand it is immediately more than met by the large supplies offered from day to day. This, of course, is an immense advantage to buyers, who are not slow to avail themselves of it, and consequently the prices they offer are extremely low—so very low that business is often stopped. When such low figures as 14/ for coke tins, and even less, are put as limits to orders for large lines of plates, it is no wonder sellers only accept for the lesser lots just enough to carry them over a few weeks, and but seldom over a few months. The feature of the trade just now is that stocks are increasing, some say even last month they increased to the tune of about 30,000 boxes. The prospects are certainly not bright just now. However moderate that restriction may be, it could not be done without combined action, and it would doubtless sensibly affect the trade before next quarter-day and thus help toward clearing away the present gloom, as there are not wanting many who prognosticate very low figures ruling on that day. There has been a fair demand for coke tins, but the business has been limited, and all in consequence of the low prices; 14/ 14/1 1/2 and 14/3 are the figures for ordinary good coke tins, while some of the commoner sorts, though not offering, are expected to be bought at less. In fact, the figure aimed at now is 13/9, though so far sellers make a firm stand at 14/. The demand for coke-tin wasters is an average, and prices are 13/3 @ 13/6 for the different grades, and it is sometimes difficult to get these figures; they are "shaded" occasionally, especially for the smaller size, viz., 14 x 10; good brands of 14 x 20 still command 13/3, 13/4 1/2 and 13/6. The demand for steel plates is also very good, that for Bessemer qualities in coke grades being very much on the increase. But even here again the orders placed are a mere nothing as compared with what are required for. Low prices again bar the way to a big business. Prices vary from 14/4 1/2 to 14/9 IC. At first a trifle less orders could be booked for delivery over the next half-year, and in some cases the time is extended over the whole of next year. For best or Siemens steel plates, also in coke grades, there is a fair demand, and prices of these vary from 15/4 1/2 IC to 15/9 IC. Even in charcoal and best charcoal tin plates there is an improvement and quite a revival of interest shown. There are many very good inquiries to hand with well-assorted specifications. But prices of these again are very low, the competition being very keen for all such orders, as they have become so scarce of late. Ordinary grades of charcoal are down to 16/6 IC, others of better quality 17/ @ 17/6, and best charcoal tin plates 18/ @ 18/6. Terne plates are quiet again, with very little new business on hand this week. They are still 14/ 14/6 and 15/—more at two former figures than at the latter one.

THE BOARD OF TRADE RETURNS

for November are very discouraging in many respects. They show that the imports were of the total value of £30,752,453, as compared with £36,526,437 in November, 1883, or a comparative falling off of nearly £6,000,000 in a single month. The total value of the exports was £17,704,213, as against £20,054,608 in the same month of last year, or a decrease of over £2,250,000. The exports of iron and steel last month totaled 359,494 tons, valued at £1,937,789, against 342,051 tons and £2,313,674 in November, 1883. The exports to the United States were:

Articles.	Month of November, 1884.	Month of November, 1883.	Month of October, 1884.
Alkali	286,290	330,679	259,126
Hardware & cutlery	30,401	29,530	28,985
Iron—Pig	10,374	22,958	10,728
Bar, angle, rod, &c.	188	264	219
tons	1,007	6,702	851
Railroad, all	2,815	577	2,688
Hoops, sheets, plates	16,861	17,509	15,990
&c.	74	196	72
Tin plates	1,040	439	1,630
Cast or wrought	1,049	865	1,181
Steel unwrought	50	80	78
Lead, all sorts	3,007	6,078	3,990
Steam engines	27,890	29,054	26,134
Other machinery, &c.	300	268	260
Tin, unwrought	1,007	6,702	851
Special return—Iron			
rails			
Steel rails			

Electrical Hypothesis of Flame.—Large furnaces must apparently replace small ones. Mr. F. Siemens has proved that solid substances interfere with the formation of flame, and that flame injures solid substances with which it comes in contact. To account for the phenomena he advances, preferably, an electrical hypothesis. Accordingly, he explains flame as the result of an infinite number of exceedingly minute electrical flashes, the flashes being due to the very swift motion of gaseous particles, and a solid body which opposes itself to these flashes is cut by them, while the motion being more or less arrested by the solid body, the flame is damped. Mr. Siemens insists, therefore, that flame must not be allowed to impinge upon bodies to be heated, but must simply heat the bodies by radiation, and furnaces must be so constructed as to allow the flame to develop out of contact not only with the substance on its bed, but with the walls and roof of the furnace itself.

From Worcester, Mass., a dispatch published in the labor papers says: "It is a fact that in this city of conventions, where thousands of workmen have assembled from all parts of the State, in the interests of political parties, there does not exist a single trades union. The molders' union, at one time a powerful organization, collapsed some years ago because of defeat in a protracted strike."

Natural Gas at Pittsburgh.

Within a single year great strides have been taken at Pittsburgh in the natural-gas industry, says a correspondent. In the city alone not less than \$6,000,000 are invested in practically applying the gas. Add to that its introduction as fuel in surrounding towns and the villages of adjoining counties, and it will make an additional \$4,000,000, or a grand total of \$10,000,000 invested in an industry in Western Pennsylvania that was practically unknown a few years ago. This sum embraces the cost of boring wells, labor and machinery requisite for the work, purchase of the land on which wells are located, purchase of right of way for pipe lines, increase in machinery of pipe mills for the manufacture of thousands of tons of pipes, the cost of these iron pipes, freight bills on the delivery of pipes, the wages of thousands of laborers in laying pipe lines, plumbing and pipe-fitting in mills, factories and dwellings, changes necessary for the adaptation of furnaces and stoves for the use of natural gas, and the manufacture of gas fittings, gauges and meters. A year ago the subject was insignificant. To-day it ranks in importance with the iron, steel, glass and coal interests of Western Pennsylvania. Each and every one of them has become dependent on the resources of the new fuel.

At the present time the Consolidated Fuel Gas and Penn Fuel Companies are the only ones delivering gas in the cities of Pittsburgh and Allegheny. They have in operation four lines of pipe from their wells at Murrysville to Pittsburgh, a distance of 20 miles, making in all 80 miles of pipes. Experiments were made with one line and it delivered gas into a holder in the city at the rate of 2,000,000 cubic feet per 24 hours, with 100 pounds pressure at the well. Taking into consideration the relative size of each pipe line, their combined capacity will be 10,000,000 cubic feet per day, delivered in Pittsburgh. To these lines one of 10 inches in diameter is being added, which will increase the capacity to between 15,000,000 and 17,000,000 feet per day. The Washington Gas Company have in operation a pipe line 20 miles in length, from the famous McGuigan Well, in Washington County, to Pittsburgh, through which they are supplying mills on the Southside at an enormous rate. To this they are building an additional 8-inch pipe line which will give them a capacity of 5,000,000 feet per day. The Philadelphia Company, Westinghouse's wealthy syndicate, are busily constructing three gigantic pipe lines—one from Murrysville, 20 miles distant; another from Tarentum, 21 miles distant, which will be extended to the Butler field in the future 10 miles further away, and the third from the famous Westinghouse wells at Homewood, within the city limits, but 4 miles from the iron mills. These pipe lines are all of large size, and will have a combined capacity of between 25,000,000 and 35,000,000 cubic feet per day. The Carpenter Company are now laying an 8-inch main, 16 miles in length, from Murrysville to the city, which will deliver, when completed, 4,000,000 feet a day. The Chambers Company are putting down an 8-inch line from the Washington field to town, with space enough for 3,000,000 feet per day.

To aggregate the above as the total supply of gas Pittsburgh will have within six months would be misleading. Already three iron mills have gas wells at their doors, and other firms are boring private wells. A single well produces anywhere from 40,000 to 100,000 cubic feet of gas per day, so that the output of all private wells within Pittsburgh should be added to the grand total of the capacity carrying companies to get a true estimate. These figures give some idea of the enormous possibilities spread out for Pittsburgh's future. Not only Pittsburgh, but in one sense the world, will be benefited. With cheap fuel the iron and glass city expects to undersell all competitors. It has been found that the absence of sulphur from the gas makes better glass and better iron. The result is better iron and better glass than are made elsewhere and at cheaper prices.

The rivalry between the leading corporations is intense. The wealthiest capitalists of the city hold stock in them. The volume of their stock has gone up to fabulous sums, and as a result of the competition the price of natural gas to consumers has gone down to 15 cents per 1000 feet—a little less than the price of coal. It is confidently expected that it will go to 5 cents per 1000 feet before long. But it is not alone in the price that gas is more economic as fuel than coal. It is in the saving of labor. No coal-heavers, ash-haulers or coal delivery on cars or wagons are required. The Pittsburgh Plate Glass Company, whose works are 20 miles up the Allegheny River, are saving \$1000 a day, or \$300,000 a year, by the use of gas. Their works are vast in size, and the output is immense. They are underselling the world with their plate glass. In every other branch of manufacture the saving is in the same proportion. So very little is yet known about the natural-gas resources, even by scientists, that no one can speak with certainty as to the life of a gas well. Two theories are held—first, that the supply of gas is inexhaustible; second, that the supply can and will be exhausted within 20 years. The former idea is that generally accepted, and experience supports it in a measure. Dozens of wells in this part of the country have been burning since 1870 and a few since 1862, with an undiminished flow of gas.

Through the agency of this gas Pittsburgh is passing through a transformation wonderful almost as the tales of the Arabian Nights. For months past gradually, and now almost swiftly, it is changing from a city of smoke and grime to one of the fairest and cleanest cities in the land. Day by day it less and less deserves its world-renowned title, "The Smoky City."

The Wall of the Wood-Carver.—Between the high rents and competing iron manufacturers, New York wood-carvers are having a serious time. One of them recently remarked: "Before rents got so high that all the ship building and repairing was driven down East, around Portsmouth and Maine, there was a good deal of ship-carving—figure-heads and the like, which pay better than cigar-store figures—to be done about

here. Now it's all gone, and we have to fall back on wooden Indians. Sometimes we get a wooden coat of arms to make for some rich man. They pay pretty well. Wooden figures don't pay so well. This Indian chief will cost the owner \$50; that Sultana, \$45; the little Indian squaw to the right of you, \$25, and so on. They have begun to make cast-iron figures at some of the iron works, and that cuts in on us, of course."

Ward, Stanton & Co. Assign.

On Tuesday of last week the boat-building firm of Ward, Stanton & Co., of Newburg, N. Y., made an assignment to James Beggs, a dealer in machinery supplies at No. 9 Dey street, New York. This was one of the largest mechanical establishments in Newburg. Its pay-roll has amounted to about \$12,000 per month, and the number of employees at present is 200. The average number employed during the past five years has been between 400 and 500. Trade has been dull lately, and at present two iron ferryboats for the Hoboken Ferry Company constitute the only work in the yard. The cause of the firm's embarrassment is due first to its loss by fire two years ago, when its works were destroyed, causing a loss over and above the insurance of about \$60,000. The firm was organized on February 13, 1872. It has often felt the want of sufficient capital to successfully carry on its business. The firm secured considerable fame by building splendid pleasure yachts, iron ferryboats and the fastest tugs on the river. They built Lorillard's Radha, Boucicault's Shaughran, Phenix's Vedette, James Gordon Bennett's Namouna, and others. They also recently constructed four iron ferryboats for the New York, West Shore and Buffalo Railroad, two for the Newburg and Fishkill line, two for the East River Ferry Company, and three besides the two now in course of construction for the Hoboken Ferry Company. The assignees will complete the work now on the yard in progress of completion. He says that the employees who were laid off last Tuesday night for a short time will be paid in full. The liabilities of the firm are about \$100,000, and their assets cannot be determined until an inventory has been taken. Robert Whitehill, owner of the Newburg Steam Engine Works, is the sole preferred creditor, his claim being about \$2100. It is expected that the firm will soon be reorganized under a new name, and will go on with its extensive business. The property occupied by the concern is owned by the West Shore Company and is very valuable.

Widening the Suez Canal.

The technical commission that went to Egypt recently in order to study on the spot the most practical means of improving the Suez Canal, remarks London *Iron*, have agreed upon a scheme for widening it. A correspondent states that, before adopting that scheme, instead of the plan which consisted in the construction of a parallel canal, it was requisite to determine the width that it would be necessary to give the canal in order to allow two vessels steaming in opposite directions to pass each other without stopping. Practice has proved that a ship which answers well to the helm requires, in navigating in a canal, a breadth of channel a trifle superior to twice her breadth of beam. The commission based its calculations on the Austral, the largest vessel which up to the present time has passed through the canal. Her breadth of beam is 14 m. 60 cm. (47 feet 11 inches.) Supposing that two vessels of the dimensions of the Austral—that is to say, measuring 15 m. across the main beam—were to meet, it is calculated they could pass each other easily within a width of 82 m. (269 feet.) That would allow of 30 m. between the two ships and 11 m. between the vessels and the sides of the channel of the canal. Eighty-two m. is, indeed, exactly the width of certain parts of the Clyde, where large ships pass one another without stopping, and where the current runs 2 miles an hour.

In the greater portion of the Suez Canal—that is to say, from Port Said to Kilometer 130, situated at the southern extremity of the Bitter Lakes—the current does not exceed 1 mile an hour, yet it is intended that throughout the whole of that portion of its course it should be made 82 m. wide at the top of the channel and 70 at the bottom. From Kilometer 130 to Suez—that is to say, in that part of the canal where the currents caused by the ebb and flow of the tide sometimes run 2 miles an hour—the safety of vessels passing one another is to be insured by making the channel 80 m. wide at the bottom. Moreover, all the curves are to have a radius of at least 2000 m. (36,560 feet). The channel at these places is also to be made 85 m. wide at the top. It is stated that, with a view of undertaking these works without delay, the Suez Canal Company are anxious to obtain a more abundant supply of fresh water. Port Said is, even with its present population, badly supplied with that most necessary article, and it is to be anticipated that, when the improvement works are begun, the number of its inhabitants, as well as that of the vessels in the port, wanting fresh water will most materially augment. The company have repeatedly applied to the Egyptian Government to be allowed to construct a freshwater canal to Port Said, and it is believed that there will no longer be any delay in the matter, as, when the new works are begun, Port Said will require, according to the season, from 1200 to 1500 c. m. (about 375,000 gallons) of fresh water a day.

The Standard Theater, in this city, has an iron curtain. This, in case a fire should originate on the stage, will prevent it from spreading to the auditorium for at least 20 minutes, thus giving the people ample time to escape from the building. A similar arrangement should be provided in every place of amusement, but the curtain should be held in place with inflammable ropes, and not with wire ropes, so that a fire would automatically lower the curtain in case of panic-stricken employees.

Wholesale Hardware Prices, December 30, 1884.

HARDWARE.

[illegible][illegible][illegible][illegible][illegible]

Top Borers.

Common and Ring	dis 20&10
Ives' Tap Borer	Nos. 1, 2, 4—dis 15&10
Ives' Tap Borer	Nos. 13, 14—dis 25&10
Enterprise Mfg. Co.	dis 20&10
Clark's	dis 20&10

Tapes, Measuring.

American	dis 25&10
Spring	dis 40
Chesterman's	Regular list dis 25

Thermometers.

Tin Case	dis 60
Tinners' Tools and Machines.	
Machines (P. S. & W.)	list add 20
Tools (P. S. & W.)	add 5

Tinware.

Stamped, S. S. & Co.	Net prices
Pleced, S. S. & Co.	dis 60
Japanned, S. S. & Co.	dis 25&10

Tramson Lifters.

Wollensak's Patent	dis 35
Reiber, Imp. Lifter, list, Oct. 1883	dis 35&5
Exelior	dis 50&10&25

Tobacco Cutters.

Enterprise Mfg. Co. (Champion)	dis 20&10
Wood Bottom	dis 20
All Iron	dis 4.50 net
Japanese, S. S. & Co.	dis 15.00 dis 50&5
Clipper (Sargent & Co.)	dis 24, dis 50&10
Acme	dis 20.00, dis 40

Traps.

Game, Newhouse	dis 35
Game, Oneda Pattern	dis 60&10 or 60&10&10
Game, Blake's Patent	dis 40&10
Nashua, Wook Co.	dis 20
Mouse, Round Wire	dis 1.50, dis 10
Mouse Cage, Wire	dis 2.50, dis 10
Mouse Catch-em-alive	dis 2.50, dis 10
Mouse, "Bonanza"	dis 1.50
Mouse, Delusion	dis 18.00, dis 20
Garden	dis 10.00, dis 10

Trow-Is

Lothrop's Brick and Plastering	dis 20&10
Reed's Brick and Plastering	dis 15
House, Wood, Choker	dis 40&10
Pease's Plastering	dis 20
Clement & Maynard's	dis 20
Brade's Brick	dis 20
Worrall's Brick and Plastering	dis 20
Gau.	dis 50

Tricks, Warehouse, &c.

Butter and Cheese	dis 25
Penfield Block Co.'s list, 1883	dis 40

Twine.

No. 12, Flat Twine, 1/4 and 1/2 in Balls	BC. B.
No. 18, " " " "	15 16
No. 30, " " " "	17 18
No. 20, Matraze, 1/4 and 1/2 in Balls	16 17
Chalk Line, Cotton, 1/4 and 1/2 in Balls	16 17
Mason Line, Linen, 1/4 and 1/2 in Balls	16 17
3-Ply Hemp, 1/4 and 1/2 in Balls (Spring Twine)	16 17
3-Ply " " " " " "	16 17
Cotton Wrapping, 5 Balls to a doz.	14 15
2, 3, 4, and 5 Ply Jute, 1/4 and 1/2 in Balls	16 17
Cotton Mops—6, 9, 12 and 15 in doz.	17 18

Vises.

Solid Box	dis 50
Parallel, Fisher & Morris Double Screw	dis 25
Parallel, Stephens	dis 25
Parallel, Parker's	dis 20
Parallel, Wilson's	dis 50
Parallel, Howard's	dis 40
Parallel, Bonney's	dis 40
Parallel, Merritt's	dis 15&20
Parallel, Sargent's	dis 60&10
Parallel, Backus and Union	dis 40
Parallel, Double Screw Leg	dis 15&10

Parallel, Simpson's Adjustable dis 40
Saw Filers, Sonney's, Nos. 2 & 3. dis 15.00, dis 40
Saw Filers, Stearn's dis 20&10
Saw Filers, Hopkins dis 17.50, dis 10
Saw Filers, Reading dis 40&10
Saw Filers, Wentworth dis 50
Covell Hand Vices dis 25
Richardson's Vice and Anvil dis 25

Washer Cutters.
Smith's Patent dis 12.00, dis 20&10&10
Johnson's dis 11.00, dis 35
Fenny's dis 10.00, dis 10
Appleton's dis 16.00, dis 60&10
Bonney's dis 20&10

Washers.—See Nuts and Washers.

Well Wheels. dis 60&10

Wire.


Brass and Copper, new list, Jan. 18, 1884. dis 20
Market, Bright and Annealed, Nos. 0 to 18. dis 70
Market, Coppered. dis 65
Market, Galvanized. dis 60
Market, Tinned, Tinned list. dis 60
Stone, Bright and Annealed Nos. 10 to 30. dis 70
Stone, Bright and Annealed Nos. 37 to 30. dis 75
Stone, Galvanized, Nos. 10 to 30. dis 65
Stone, Tinned, Tinned list. dis 60
Cast Steel Wire. dis 65
Annealed Fence, Nos. 8 & 9. dis 70
Annealed Grape, Nos. 10 to 14. dis 65
Fence Stakes. dis 70
Fence Staples, Galvanized. dis 70
Stubs' Steel Wire. dis 60 to 2, dis 30
Picture Wire. See Trade Report
Wire on Spools. dis 70
Steel Music Wire, Nos. 7 to 30. dis 70
Clothes Line Wire, Galvanized. dis 25 to 40
Wire Cloth, green, drab and black, 100 sq. ft. dis 30
" " " " 250 sq. ft. dis 35

Wrenches.—American Adjustable dis 45

Baxter's Diagonal. dis 35
Coe's Genuine. dis 10 days, dis 60&3
Coe's Pattern Malleable. dis 70&15
Coe's Pattern, Wrought. dis 75
United Standard. dis 65
Girard Agricultural. dis 65
Bemis & Call's Patent Combination. dis 30
Bemis & Call's Merrick's Pattern. dis 35
Bemis & Call's Bridge's Pattern. dis 35
Bemis & Call's Cylinder or Gas Pipe. dis 40
Allen's Pocket (Bright). dis 40 to 40
Barb Fence. dis 40
Webster's Patent Combination. dis 25
Boardman's. dis 25
Donohue's Engineer. dis 25

Wringers. Per doz.

Novety, for Common Tubs, No. 2, 10-inch. dis 20.00
Novety, for Common Tubs, No. 3, 11-inch. dis 20.00
Excelsior, for Stationary Tubs, No. E



ESTD 1881.

THE

Largest Manufacturers
IN THE WORLD OF

**Nickel Anodes,
 Nickel Salts,
 Patent Muslin Buffs,
 Polishing Lathes,
 Polishing Felt,
 Polishing Rouges,
 Pol'ng Compositions,
 Walrus Leather,
 Wood Emery Wheels,
 Platers' Brushes,
 &c., &c., &c.**

1011 Broadway, N. Y. C.

NEW YORK, U. S. A.

Zucker & Levett Chemical Co., 538 to 564 W. 16th St. 36



THE

Largest Manufacturers
IN THE WORLD OF

**Nickel Anodes,
 Nickel Salts,
 Patent Muslin Buffs,
 Polishing Lathes,
 Polishing Felt,
 Polishing Rouges,
 Pol'ng Compositions,
 Walrus Leather,
 Wood Emery Wheels,
 Platers' Brushes,
 &c., &c., &c.**

NEW YORK, U. S. A.

INDUSTRIAL ITEMS.

MASSACHUSETTS.

Schannell & Wholey, manufacturers of boilers, &c., at Lowell, have just finished four large outside iron stairways and a reservoir for the State Almshouse, at Tewksbury, and are engaged upon a similar reservoir, 55 feet high, to be used by the State Workhouse, at Bridgewater. They have also recently finished a steamboat boiler for parties in Florida.

The New Bedford Boiler and Machine Company are now engaged upon a contract to furnish the steam-heating apparatus for the New Bedford police station, and have several similar orders under way.

Babbitt, Wood & Co., New Bedford, have recently completed a steam-heating outfit for the United States Custom House and the skating rink in New Bedford. They report a brisk trade in this department.

The fifth and last of the big guns for the United States Government was cast on the 23d ult. at the South Boston Iron Works. This gun is a 12-inch rifle, and when finished will weigh 54 tons. It proved a very easy and most successful casting. The 12-inch rifle gun cast some time ago is nearly completed. The hooped gun cast in November is now in the lathe ready to be bored. The 12-inch mortar which was cast in March has been shipped to Sandy Hook for trial.

The Williams Manufacturing Corporation, of Taunton, manufacturers of twist drills, rolled and twisted cold, have issued a circular describing their drills and showing the difference in the quality of the steel resulting from the rolling to which they subject the metal. As their drills are not cut in the process of making, nor heated in the process of shaping, it is claimed that they have the full strength of the natural steel condensed and made fibrous by elongation, and also that the part of the steel which has the best cutting qualities is placed in contact with the work when drilling. The cuts illustrating the circular show sections of the steel before and after cold rolling, the finished steel presenting a much finer and more homogeneous appearance.

The Taunton Crucible Company, Taunton, report that theirs is the only crucible manufacturing establishment in the country that has not during the past five years cut down its working force or run on short time. They have not stopped a day nor reduced wages in the least, and are now running full, with orders enough on hand to keep them busy all winter.

RHODE ISLAND.

The Builders' Iron Foundry, of Providence, has recently finished and put in place 900 lineal feet of 8-foot cylinders, filled solid with concrete, in water varying from 20 to 50 feet in depth. These piers number 17, and are to support a bridge for the Texas Pacific Railroad, over the Seekonk River, in Louisiana.

NEW YORK.

Under proceedings commenced by Robert Whitehill, owner of the Newburg Steam Engine Works, and the only preferred creditor of Ward, Stanton & Co., of Newburg, the sheriff has attached the two ferryboats, the Hopatcong and Musconetcong, of the Hoboken Ferry Company, now in course of construction. Mr. Whitehill's claim, which is about \$2200, is principally for castings furnished for the boats named.

A judgment has been filed for \$13,172 30 in favor of the Morris Run Coal Company, of Syracuse, and against the Syracuse Iron Works Company. The judgment comprised a \$1500 claim for coal and the amounts of four promissory notes signed by R. Nelson Gere, president, and payable to Charles E. Hubbell as treasurer of the said company. The notes had been renewed several times. In addition to the judgment, a suit is pending against the iron works company for \$7000, owing to the Morris Run Coal Company for coal supplied on open account.

Watson & Stillman, of 470 Grand street, New York, were awarded a medal of superiority at the recent fair of the American Institute, for the improvements made by them in hydraulic jacks.

PENNSYLVANIA.

A company with a capital stock of \$15,000 has been incorporated at Huntingdon for the purpose of erecting glass works at Everett, excellent glass-sand deposits having been discovered along the line of the Huntingdon and Broad Top Railroad.

Workmen are engaged in constructing the new wire mill at Wampum. The foundation is completed, and the boilers and engine on the ground ready to be set. At present two buildings will be erected—one 250 x 90 feet, and the other 250 x 45 feet. It is expected to have the mill in operation by the middle of January and give employment to 100 men.

Nothing so well illustrates the favor with which the productions of the Gantier Steel Department of Cambria Iron Company are being received as the fact that the sales of their various products the past year increased nearly 1000 tons over those of any previous year.

The Scranton Steel Company are keeping up their record for rapid work. In one 12-hour turn last month they made 65 heats with their two converters. And in one week, working single turn, they made over 1675 gross tons of ingots, which is marvelous work for 4-ton converters.

After a trial of two weeks, the new blast furnace at Everett, in Bedford County, has proved a perfect success in every respect. She is capable of producing 100 tons a day, and is now being run to about three-fourths her capacity. The company own tracts of mineral lands containing an abundance of iron ore for an indefinite period; but at the present low price of ore they prefer to buy their supplies instead of working their own mines. The building of the furnace is due to the enterprise and energy of J. D. Williams, of Everett, who 12 years ago began to secure mineral tracts in the vicinity, and who has since been unremitting in his efforts to organize a company.

Capitalists of New York City and Eastern Pennsylvania are associated with him. About 500 men are employed at the furnace and mines, and the pay-roll amounts to \$25,000 a month.

R. B. Seidel, of Philadelphia, has just completed, and delivered to a new steel company in Philadelphia four crucibles, each one capable of melting 5 tons of steel at a time. These crucibles are believed to be the largest ever made in this country, and probably the largest in the world.

Fannie Furnace, at West Middlesex, was blown out on December 19.

The Portage Iron Works, at Duncansville, Blair County, are now making and shipping 30 tons of finished iron per day.

The foundries of the Mallet Foundry and Machine Company and Orr, Painter & Co., Reading, have been closed until January 5.

It is stated that the miners and coke drawers of the Connellsville region contemplate the formation of a union for the purpose of securing better wages.

The mills of the Bethlehem Iron Company have been closed until January 5.

Another Haskell multicharge gun is to be made on a somewhat improved plan. The work will probably be done at Reading, where the first gun was made. Colonel Haskell's theories are now generally accepted by experts.

It is stated officially that the blooming mill, Bessemer and open-hearth mills of the Cambria Iron Company, Johnstown, were closed until January 4, taking advantage of the holidays for repairs. After the 4th of January all departments will be running as usual. There is no truth in the statement that the mills have closed indefinitely.

The failure of P. L. Kimberly & Co., of Sharon, to pay off their hands last week has not caused much excitement. The Sharon, Greenville and New Castle works have been closed, the Etna Iron Works, at the latter place, which is controlled by Mr. Kimberly, not being affected. One thousand dollars have been paid to the hands at the New Castle mill. It is reported that Kimberly & Co. have asked of their creditors an extension for 18 months, which so far has met with no refusal.

PITTSBURGH AND VICINITY.

Hussey, Howe & Co.'s steel works, on Seventeenth street, which have been idle for some months, partially started up on December 19. Two furnaces in the melting department were put in order and fires built in each. It probable that the balance of the furnaces will be started in a short time.

The barb-wire mill of H. B. Scutt & Co., of the Southside, closed last week for two weeks' holiday vacation.

Shoenberger & Co.'s nail factory started up on December 18, after an idleness of several weeks. All the nail machines will be put to work, employing about 150 men.

The work of laying pipes from Jones & Laughlin's natural-gas well to the mill has been completed and the gas subjected to a test as fuel for the furnaces. In the experiment the new fuel gave entire satisfaction. A second well is being drilled by the firm.

The Pittsburgh Locomotive Works, in Allegheny, have completed their exhibit for the New Orleans Exposition. The exhibit will comprise three locomotives—one is a saddle-tank switch engine weighing 56,000 pounds; another is a passenger engine for the Jacksonville, Tampa and Key West Railroad, weighing 72,000 pounds, and the third is a heavy passenger engine weighing 92,000 pounds.

The 600 employees of the Keystone Bridge Works, at Lawrenceville, have been notified of a reduction of 15 per cent. in their wages, to take effect on January 1. They were told that all who did not receive special notice might consider themselves discharged. President Gottlieb and Secretary and Treasurer Stroble were both opposed to the proposed reduction and resigned, and on Saturday A. R. Griffin, of Chicago, was elected general superintendent. The works as now organized will resume in a week if the workmen accept the reduction ordered. The works have contracts for nearly a year.

The machinery molders of Pittsburgh continue to "agitate," but with, as yet, slender results. A secret meeting was held last Tuesday, at which variety as well as machinery molders were invited to be present, but for some reason, soon after the opening of the session, a resolution was passed debarring the former from participation in the proceedings, and they were obliged to withdraw.

The Cannon Gas Company, who for some time have been drilling a well in the Twenty-second Ward, upon the hill back of Salt Works Station, B. & O. R. R., last week struck a strong vein of gas at a depth of 1000 feet. As the site of the well is some 500 feet above the river level, the vein can be but that depth below the river—a somewhat unusual depth in view of the fact that at the other large wells in that vicinity the drill has gone down from 1500 to 2000 feet below the level of the river before gas was struck.

All departments of the National Tube Works, at McKeesport, temporarily shut down last week. Some 2000 men are affected by the stoppage.

The Newark Machine Company announce to the trade that their factory and offices have been removed from Newark to the Gill Car Works, at Columbus, at which place they will manufacture the "Victor" clover huller, grain drill, hay rakes, grain fans and feed cutters. All letters should be addressed "Newark Machine Company, Gill Car Works, Columbus, Ohio."

The rolling mill and spike factory of Dilworth, Porter & Co., Limited, on the Southside, has been closed indefinitely. Lack of orders is given as a reason for the stoppage.

Nearly all the rolling mills of Youngstown shut down on December 24, to remain closed until January 5.

The strike at the rolling mill of Summers Bros. & Co., at Struthers, is still going on, with no prospect of a speedy settlement. The firm are now securing estimates to ascertain the expense of converting the plant

into one for making sheet steel. It is stated that it is probable that the change will be made, and that work will be commenced the coming week.

It is reported that J. W. Friend & Co. contemplate starting up their Eagle Rolling Mill, on the Southside, shortly.

The Keystone Bridge Company have closed down for an indefinite period, throwing out of employment about 600 men. The firm recently ordered a 10 per cent. reduction in wages, which the men refused to accept, and the shut-down is the result.

OHIO.

Parties from New York are considering the project of establishing an ax manufactory at Leetonia.

The sale of the Hall Rolling Mill, in Hubbard, has not been effected, although it is said the Sharon parties are still holding their offer of \$30,000 open.

MISSOURI.

A press telegram from St. Louis states that on the 27th ult. Henry S. Hopkins & Co., bridge builders, made an assignment. Assets estimated at \$38,000; liabilities unknown. The firm was composed of Henry S. Hopkins, William McCully and William F. Hopkins.

INDIANA.

The New Albany Rolling Mills have been running to their full capacity during December up to the present time, and have some good orders booked for continued work. They are using Sligo, Mo., iron and No. 1 wrought scrap, and turn out 28 tons of bar iron per day. They are getting scrap from all parts of the country, considering it good stock to invest in, a great deal of it coming from New Orleans. They have now on hand over 800 tons.

ILLINOIS.

The Link Belt Machinery Company, of Chicago, are building an addition to their works in the form of an L, three stories in height, 65 x 160 feet. The new structure is intended for the special accommodation of wood-working tools, and for the manufacture of sawmill machinery, and is expected to be ready for occupancy by February next.

It is reported that the Joliet-Iron and Steel Mills will close down on the last day of December and remain so from three to six months. This will throw 1200 men out of employment.—*Industrial World*.

The Campbell Printing Press and Mfg. Co., since the destruction of their large works in Chicago by fire, have taken temporary quarters on Third avenue, which they have supplied with new lathes, planers and drill presses of the latest improved make. The company are busily engaged in making printing presses and general repair work. They intend next May to commence the construction of new works on the Southside. The new works will have 10,000 to 15,000 square feet of floor surface, and are to be thoroughly equipped.

KENTUCKY.

Fire Creek, Va., coke is extensively used by some of the Louisville foundries. It appears to be a very superior article, and, although it is higher in first cost than Connellsville coke, it comes cleaner and is just as cheap in the end. The quality of the Connellsville coke lately arrived, however, is superior to that of last year.

Before the recent rise in the Ohio River coal and coke began to get very scarce about Louisville. Large tons of both have since arrived, many for Southern ports, but Louisville gets most of them. Although Kentucky's coal fields are exhaustless, Louisville depends principally on Pittsburgh for fuel. Several barges of iron have arrived for the cities about the falls that were due months ago. The Government works on the harbor have ceased on account of the rise in the river. When these improvements are completed the good effects will be felt from Pittsburgh to New Orleans.

The Louisville and Nashville Railroad Company are rebuilding their freight shed and warehouse at Louisville, which was burnt about a month ago. The new one will be considerably larger than the old one.

A press telegram from Louisville states that on the 26th ult. the Southern Wire and Iron Works Company made an assignment to Capt. H. S. Irwin. Liabilities, \$6000; assets about the same.

The St. Louis Malleable Iron Company, of St. Louis, are meeting with great success in the sale of their patent steel waterbacks, stove manufacturers at Chicago, Detroit, Milwaukee and elsewhere having placed numerous orders. The works continue to run full in all departments.

The Missouri Furnace Company are awaiting an equitable adjustment of freight rates on raw materials before blowing in one of their furnaces. They are not disposed to start until the railroad guarantees them their rates in advance.

GEORGIA.

The Georgia Machinery Company, of Atlanta, in order to meet the demand of their trade, are building an addition to their foundry and erecting a new cupola, which, when completed, will more than double their present capacity for light and heavy castings. Considerable inconvenience has been for some time felt in this section by the necessity of sending North for this class of work and malleable castings, and the company have designed a building, to be erected early in January, especially fitted up for the purposes required.

Assisting Manitoba Wheat-Growers.—Shipments of wheat will soon begin in Manitoba under an arrangement which has been devised for the assistance of the farmers of that region. A loan of \$4,000,000 is advanced by the Bank of Montreal to a syndicate working in harmony with the Canadian Pacific Railway. The loan is for six months at 5 per cent., and the bank will advance on the actual cost of the wheat at Winnipeg, minus all the freight charges, which will leave a margin of 9 to 12 cents a bushel for the security of the bank. There is a surplus of 6,000,000 bushels of wheat in the Northwest, all of which, it is claimed, will reach Montreal, on its way to Europe, next year. The railway company is hurrying the construction of its elevators at Montreal.

Sheffield Gun Forgings and the Government.

In the course of a speech in the British House of Commons Mr. Brand, the Surveyor-General of Ordnance, made the following statement with regard to Sheffield and the supply of gun forgings: He contended that the delay in the manufacture of ordnance for the navy had not been of an avoidable character. The difficulties in the way of manufacturing the new ordnance had been almost overcome when the Ordnance Committee in the spring of 1883 decided that all guns for the navy should be made entirely of steel. A new steel test was established and a great many rejections were the result. The "trade" in Sheffield could not supply the department with steel ingots of the size and quality required. In November, 1883, Sir Frederick Campbell was commissioned to visit the principal steel factories in the United Kingdom and subsequently those in France, with a view to its being ascertained what reasonable modification in the test would admit of the English trade producing steel that would be passed by the War Office inspectors. Sir F. Campbell reported that if certain modifications were made in the specification there would be no difficulty on the part of the trade in producing the steel required. The Ordnance Committee accordingly recommended a revised specification, and some further modifications were subsequently suggested by the manufacturers which had within the last few days been adopted by the committee. The position now was that the steel trade was both willing and able to meet the requirements of the War Office with regard to steel forgings. A proposal has in the meantime been pressed by the superintendent of the Royal Gun Factory to put up steel plant for forging heavy steel ingots at Woodwich Arsenal, but this had not been approved. The Secretary of State was of opinion that such a

sewer and other expensive engineering features, has been to dump all the sewage of the city into the sea. Now that Boston has completed its arrangements upon this plan, attention is being very prominently drawn to the experiments at Pullman, Ill., where a method directly the opposite is being pursued. In Pullman the sewage is used for enriching the soil of the surrounding country, and what is known as the sewage farm, near that city, is said to be achieving decided financial and sanitary success. The inference is that the Boston plan was not only expensive in its inception and execution, but is a decided waste now that it is in operation. The Pullman farm is on the Calumet River, south from Chicago, and the sewage is conveyed to it through an iron pipe 3 miles long. The farm is said to have produced during the last season over 100,000 heads of cabbage, 18,000 bunches of celery, besides 100 tons of hay and a large amount of farm produce. It has a dairy department well stocked with fine cattle, and according to the Chicago Tribune has paid an excellent return on the investment.

Malleable Iron Hinge Pipe-Vise.

An improved malleable iron hinge or open-jaw pipe-vise has just been brought out by Messrs. D. Saunders' Sons, of Yonkers, N. Y. Its advantages, we think, will be readily appreciated upon examination. In the ordinary pipe-vises in use the jaws are so inclosed on all sides that the pipe can be entered only endwise, making it necessary to reserve a space beyond the wire equal to the length of the longest pipe to be screwed. In the vise here shown the top half, being hinged, can be opened, admitting the pipe sideways, and thus saving considerable room. This side opening is attended with the further advantage that the vise may be used for holding pipes while elbows, tees or other fittings are screwed upon one or both ends, or for taking apart old pipe-work in which the parts have become rusted together. This is not possible in vises with inclosed jaws, as pipes with fittings upon their ends cannot be inserted or released.

Fig. 2 shows a special arrangement adapted



Fig. 1.

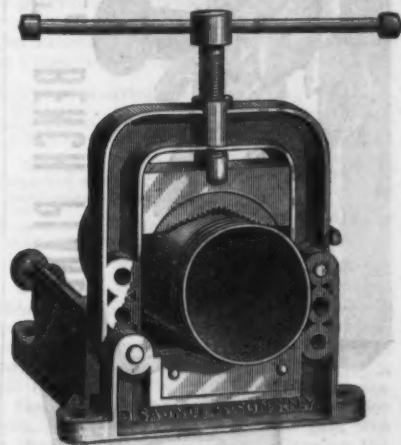


Fig. 2.

IMPROVED OPEN-JAW PIPE-VISE.

policy would be mischievous, and ought not to be adopted except under the stress of the most imperative necessity.

Subsequently the following extract, with comments, appeared in a London evening paper:

"The re-armament of the navy is just now the cause of more anxiety to the Government than even that of ships. Some time ago an agent was sent to Essen to endeavor to arrange with Krupp for the supply of heavy guns, but that firm declined to take an order for less than £1,000,000. This the authorities did not see their way to give, and it was then decided that the necessary plant for the construction of heavy steel guns should be set up at Woolwich. As soon as this became known to the 'trade' in England, so vigorous was the protest on their behalf, accompanied by a hint that certain elections might be influenced adversely to the Administration, that the idea was given up. The 'trade,' however (so we are told), is unable to furnish ingots of the magnitude requisite for the size of guns demanded for the navy, owing to the inferiority of hammer-power; and, consequently, the authorities are again looking abroad for the necessary material. This time they are negotiating with Schneider, at Creuzot, both for ingots for the guns and for armor-piercing shot. The bursting of so many guns lately is said to be directly due to the inferior quality of steel furnished by the English makers.

"We have made inquiry at several of our leading firms with regard to the above statements. One large manufacturer entirely discredits the million story, and does not think there is any truth in it. Some two years ago, however, it was freely stated in business circles here that the Government, being anxious to obtain a Krupp gun, gave an order for one, but that the Essen firm declined to supply a 'sample' gun, requiring an order to the extent of £1,000,000. So far as regards the alleged inability of English firms 'to furnish ingots of the magnitude requisite for the size of guns,' &c., it is sufficient to state that the Government have never wanted tenders for any piece of steel that the Sheffield firms could not supply. One large firm state bluntly that there is no truth in this alleged inability and the intention of the authorities to go abroad for the material. On the contrary (they inform us), Messrs. Vickers, Sons & Co., Messrs. Charles Cammell & Co., Messrs. Thomas Firth & Sons, and Whitworths, of Manchester, have reason to expect early and continuous orders from the War Office for gun forgings, &c., and the demand during the approaching 12 months will probably be considerable." It is positively stated by principal and leading representatives of local firms that the bursting of the guns was certainly not due to defective steel.

The fundamental idea in the new Sewage Works at Boston, which involve very powerful pumping engines and an intercepting

for a variety of sizes to which the vise shown in Fig. 1 cannot be adjusted. It will be seen that, in addition to the sliding jaw, the degree of opening can be further increased by making the upper portion of the apparatus entirely detachable and capable of being fixed by pins at various heights, as occasion may require. The working parts are well arranged and proportioned and carefully fitted, and any part can be duplicated.

Foreign Trade.—Some remarks made by the Montreal Herald on the subject of foreign trade for Canada are applicable in the case of other countries. Says the Herald: "We live in an age of keen competition. Every country that desires to keep pace with the times, and to hold its own in the community of nations, must by every available means make the most of its natural advantages. It will never do for those who have the direction of its affairs to be discouraged by difficulties, and to give up in despair because some of their attempts to improve its position have failed. The Gazette has told us of all the 'failures' which have befallen the Government's efforts to secure admission of our products to foreign markets, and Sir John has intimated that we must wait, like Micawber, for something to turn up. But self-reliant Canadians want to know if past attempts were made wisely, in good faith, and under proper conditions."

The introduction of refrigerator cars on the railroads has opened up a new industry to the South. By means of this system of shipping, fruit is being sent from very remote points, some of them even beyond the Mississippi, to the eastern and northern cities. At present the South is somewhat embarrassed for lack of railway facilities, more especially of through lines. As soon as several lines are completed which are now in progress, the fruit-shipping industry will no doubt gain great headway. The demand for fruits is yet in its infancy, and it would be impossible to point out the limits which it might reach under clear-sighted and energetic management. The canning industry is also becoming an important one in some sections of the South. Manufacturers of canning machinery are experiencing a demand for their goods through the Southern cities, and there is no doubt that in the early future certain sections of the South will become formidable rivals of the canning districts in the Northern States.

Cornelius Aultman, of Canton, Ohio, died suddenly about midnight last Thursday night, aged 50. His association with the firm of C. Aultman & Co., agricultural-implement manufacturers, the Wrought Iron Bridge Company, of Akron, and the Mansfield Mower and Reaper Works, together with other big enterprises, had made him known throughout the country.

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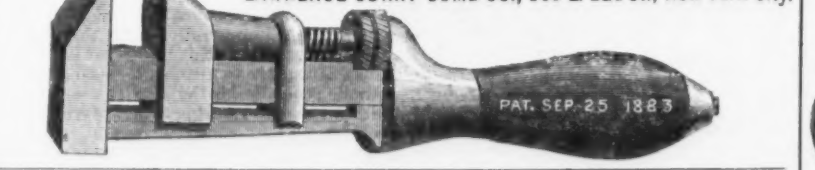
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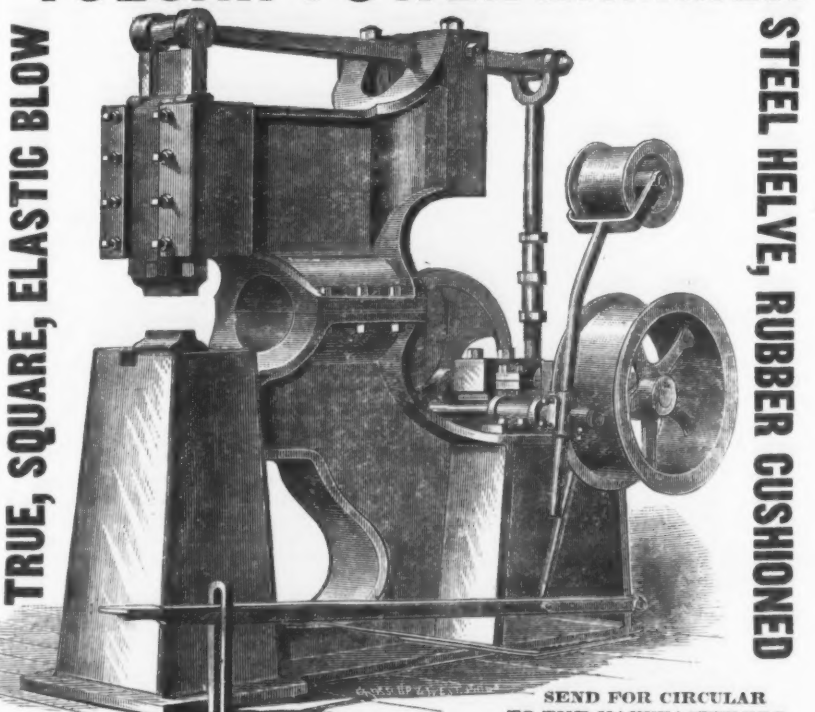


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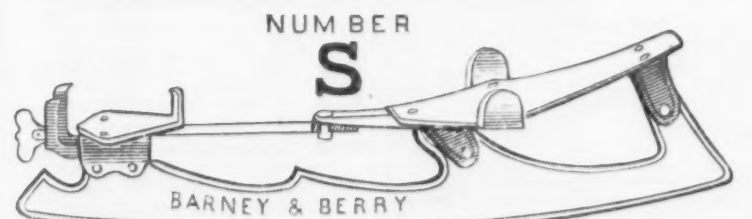
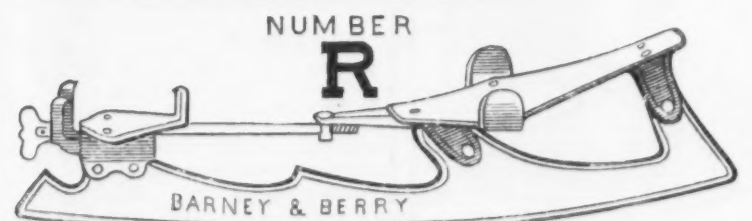
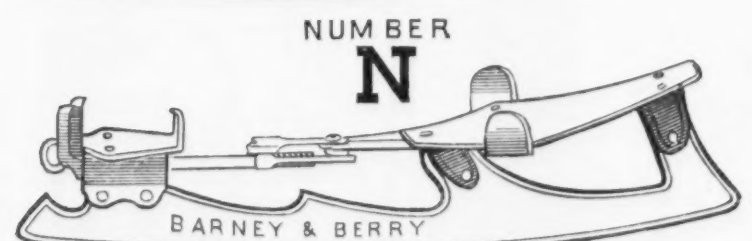
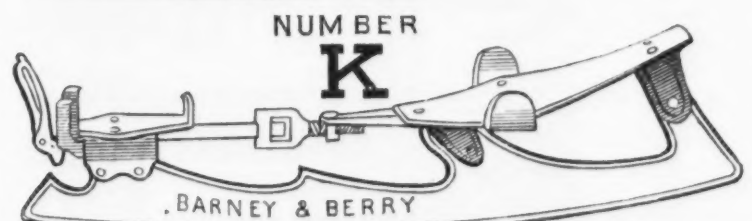
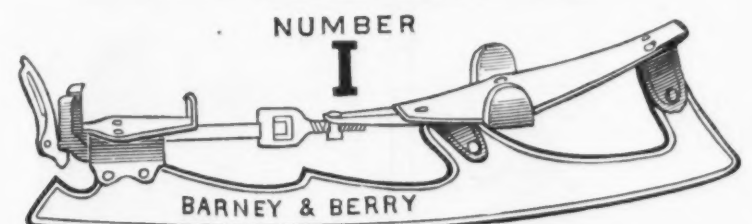
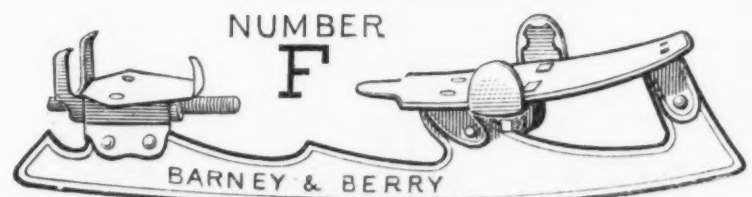
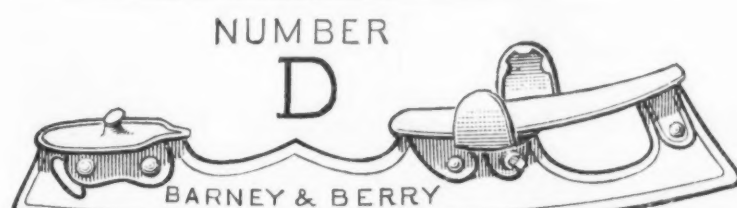
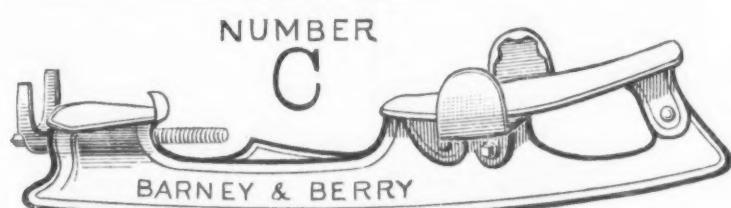
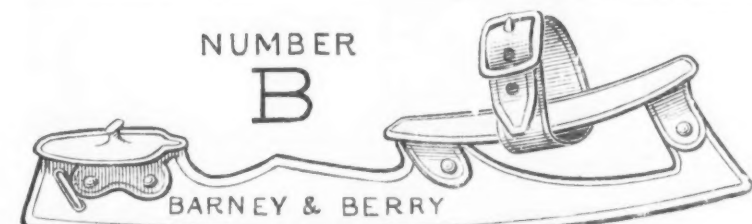
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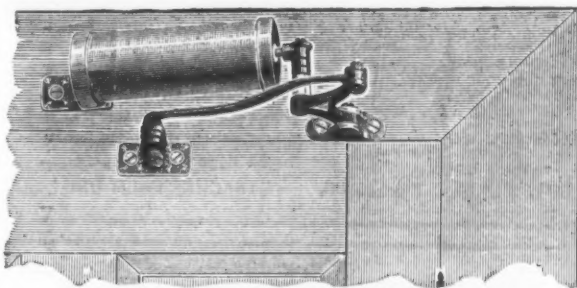


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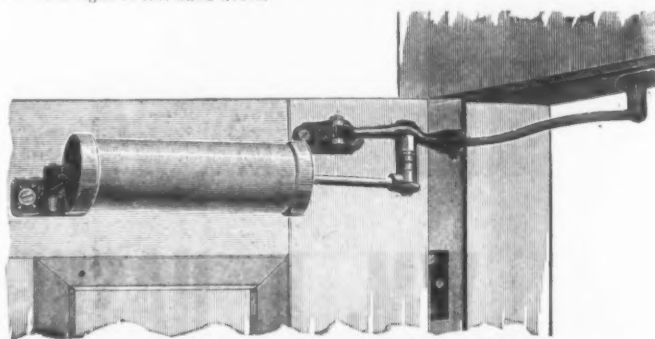
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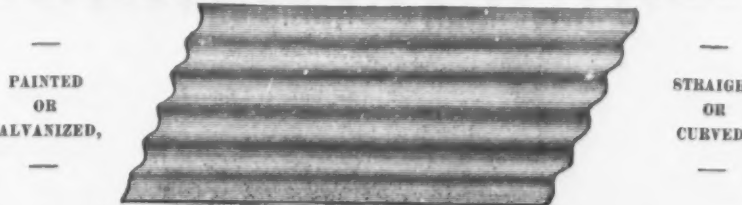
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Natural Gas for Pickling.

At a recent meeting of a local engineers' society at Pittsburgh, William Metcalf read a very instructive paper on natural gas, which was followed by an animated discussion of the points raised. In the course of the discussion Mr. Metcalf made the following interesting statement:

"I will mention another application of this gas that I heard of the other day. I did not include it in my paper because I had no opportunity of seeing it for myself. It is certainly very peculiar, and if it is anything like what is reported it is another adaptation of the gas. It is in pickling, or rather doing away with pickling. All who are familiar with the manufacture of very thin sheets of metal, either iron or steel, know the great difficulty there is in pickling the scale off, in order to get a fine finished surface. They know the danger of the acid penetrating through the metal and destroying it. It is a difficult thing to do well, and the operation is one that must be done carefully, and is one that everybody that has it to do will be glad to get rid of. I am told that a gentleman at Leechburg, now applying for a patent on the process in annealing fine sheets, brings the annealing-box to the required heat by use of the natural gas, and then, by a pipe connected into the box, when the metal is hot enough, turns in a stream of the natural gas on to the material, and allows it to pass through, keeping the box hot for some little time, and then allowing it to cool gradually, when the whole mass of sheets come out perfectly clean, as clean as tin, but not as bright, but entirely clean; and, singular to say, though the sheets are very thin and packed closely in heavy boxes, this gas in some way gets in all among them, and they come out perfectly clean and free from scale. This is another application of the gas that will certainly be of great benefit if it proves to be practicable, and there is no reason why it should not be."

The Growth of Agriculture and of Manufactures.

—In the decade from 1870 to 1880 there was relatively a much more rapid growth in the manufactures of the United States than in agricultural pursuits. The following statement shows the number of population employed in agriculture on the one hand, and in manufactures, mechanics and mining on the other, in the years 1870 and 1880 respectively:

	Number.
Employed in agriculture in 1880.....	7,670,408
Employed in agriculture in 1870.....	5,922,471
Increase.....	1,748,937, or 29.5 per cent.
Employed in manufactures, mechanics and mining in 1880.....	3,837,112
Employed in manufactures, mechanics and mining in 1870.....	2,707,421
Increase.....	1,129,691, or 41.7 per cent.

This comparison indicates that the diversion from agricultural to manufacturing employments was probably in active operation during the years from 1870 to 1880, for it will be seen that in agriculture the increase in the number employed was only 29.5 per cent., while in manufactures the gain was at the rate of 41.7 per cent. Showing the same tendency, the value of farms increased during the decade only 10 per cent., while the value of manufactured products increased 27½ per cent.

Better Prices for Wheat Next Year.

—The St. Paul Pioneer Press, in a recent issue, gives utterance to some thoughtful views on the wheat outlook for next year, which are worthy of being considered by other people besides wheat-growers: "It is very certain that next season's market will be more favorable. That much is practically assured, although we shall carry over a larger surplus than usual. It is hardly reasonable to count on the recurrence of a season so uniformly satisfactory as the last proved to be in all the principal wheat-producing countries of the world. With the certainty that the world will need to be fed next year as abundantly as this, and with the knowledge that discouraged farmers all over the country are reducing the area assigned to wheat and turning their attention to what they believe will prove more profitable forms of industry, it is not difficult to ascertain in what quarter lie the interest and the opportunity of the Northwest. There is every probability that the farmer in Minnesota or Dakota who stoutly maintains next spring the usual wheat acreage will have no complaints to make a year from this time."

An Injunction Against a Cutlery Manufacturer.

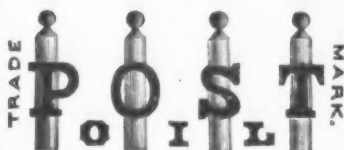
—Judge Ludlow, of Philadelphia, on the 20th of December, granted, on the prayer of William L. DuBois, an injunction against Aaron I. Sanson, Jr., restraining him from using the machinery, tools, fixtures, &c., in the cutlery factory at Hedge and Orthodox streets, to the "prejudice of his (DuBois') rights as the owner thereof." Whether this meant a reasonable use of the articles or not to use them at all was not stated. Mr. DuBois bought the factory at a sheriff's sale, which was made under a mortgage which not only covered the realty, but the machinery, tools and fixtures. The defendant is still in possession, because the law gives him the right to remain three months after notice, and, this time not having yet expired, he is still carrying on the manufacture and finishing of cutlery, and claims the right to use the tools.

A Huge Silver Brick at New Orleans.

—Much interest was excited on the 19th ult. by the unloading at the New Orleans Exposition of the famous Mexican brick, which arrived early in the morning, via Galveston, and occupied the attention of a gang of men for a good share of the day in getting it from the car into the main building, where it was left for the night. The brick is made of solid silver, mined in the State of Chihuahua. It is 6 feet long, 6 inches thick and 3½ feet wide. It bears on top a peaked model of two mountains in Chihuahua, nearly 3 feet high. On each side is the inscription: "Mexico Estado de Chihuahua para la Exposicion de Nueva Orleans, 1884." There is nearly \$200,000 worth of material in the mass, which, with the labor bestowed on it, makes its total value about \$250,000.

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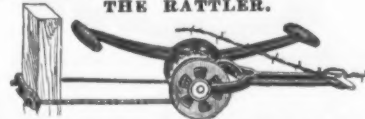
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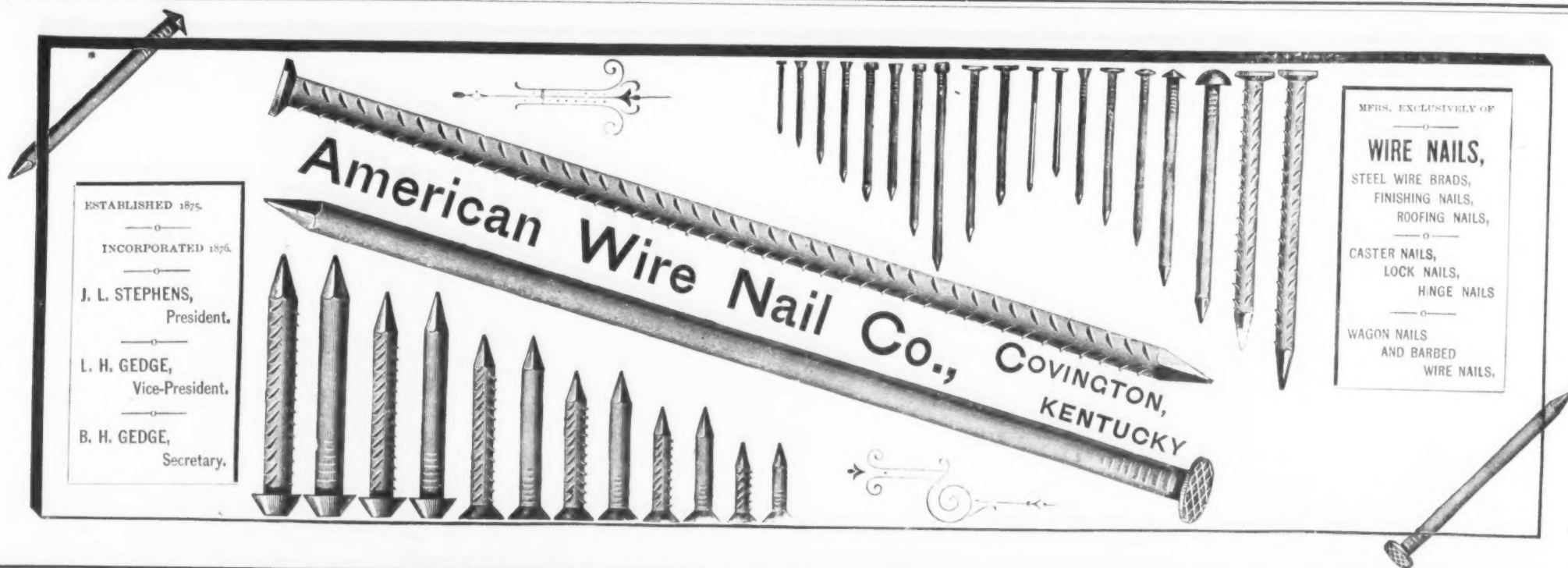
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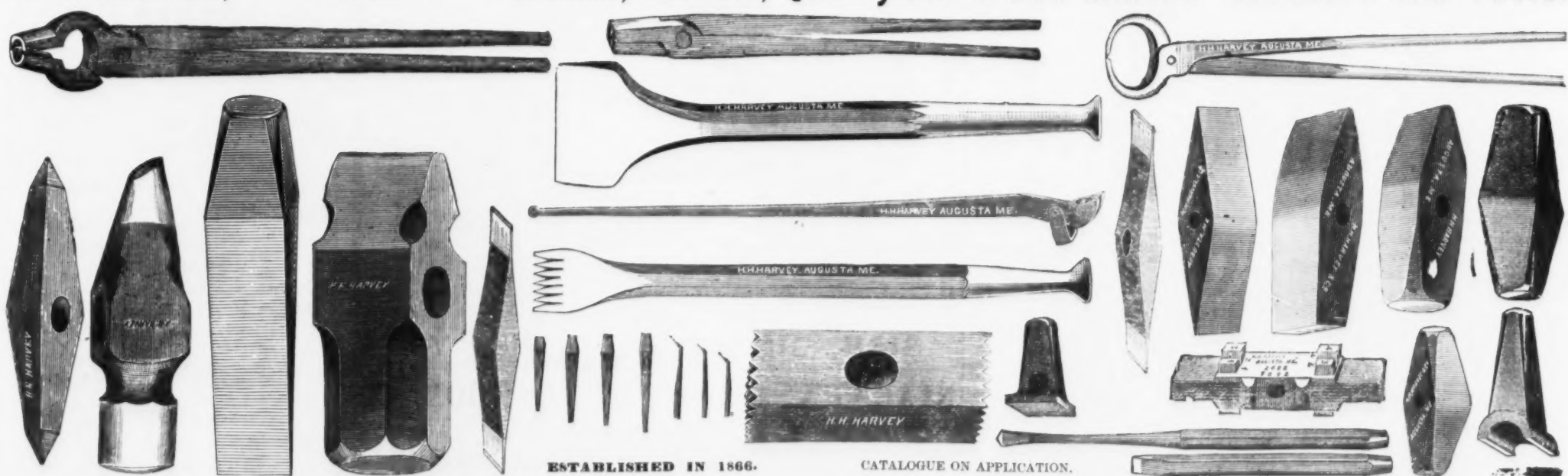
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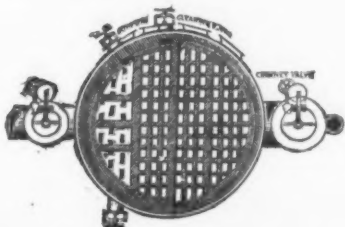
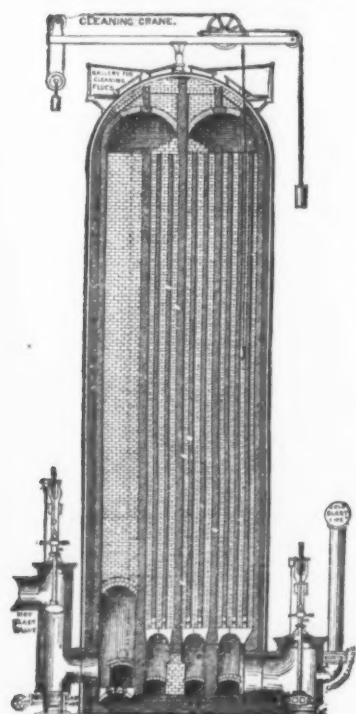
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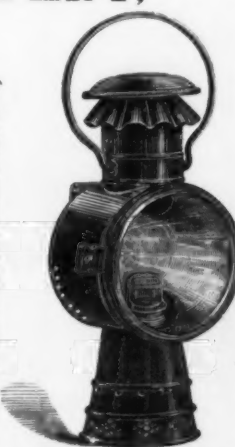
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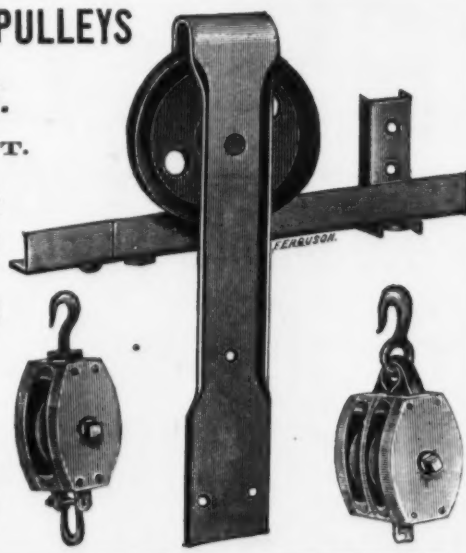
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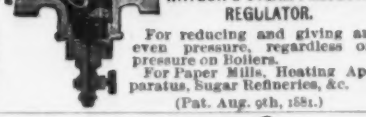
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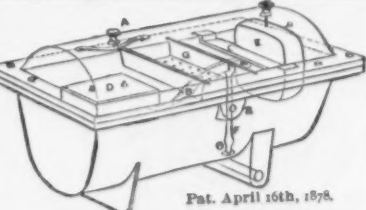
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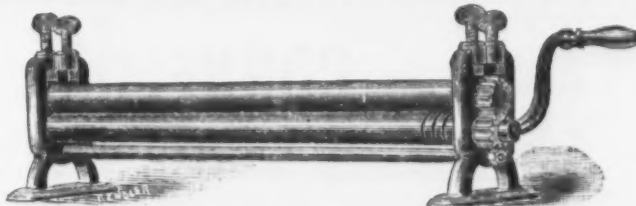
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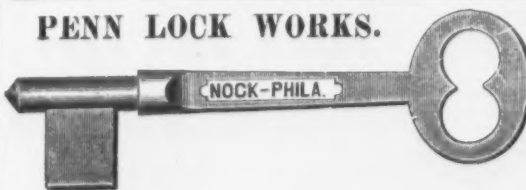
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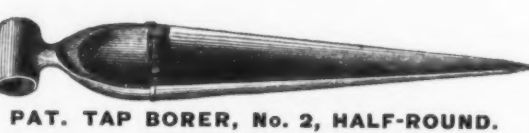
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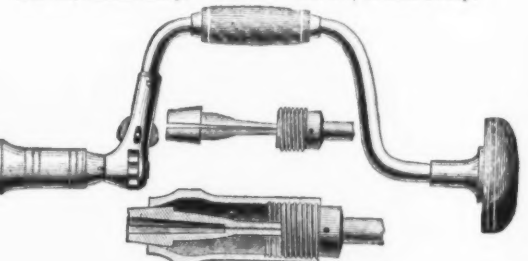
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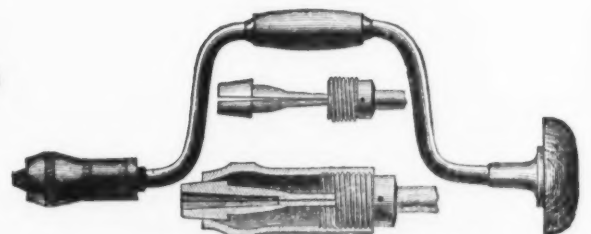


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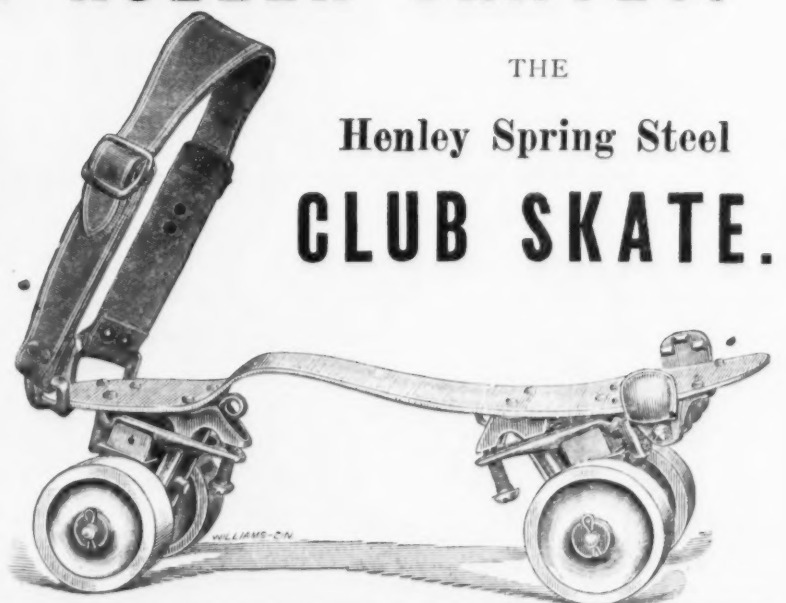
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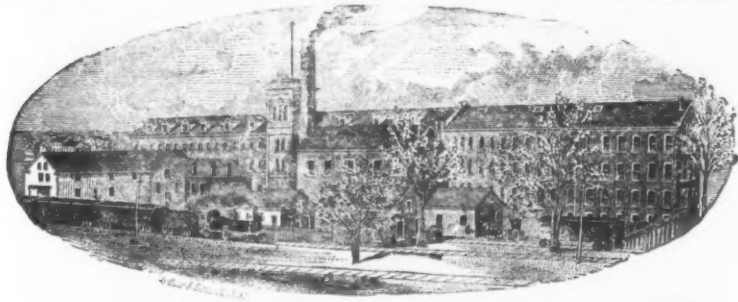
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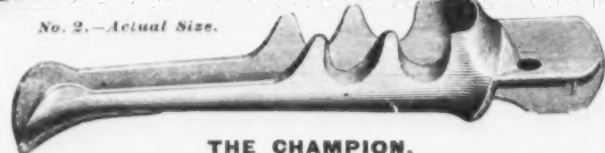
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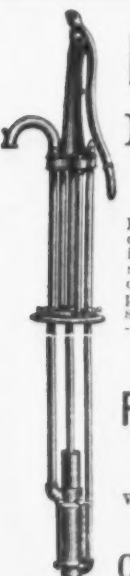
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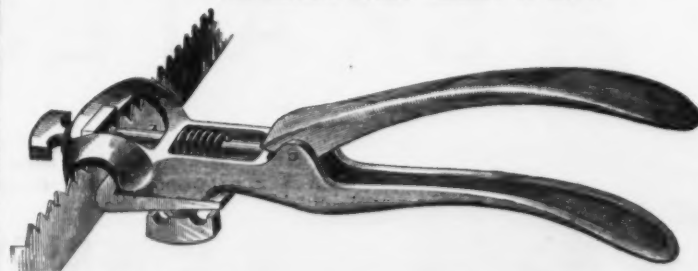
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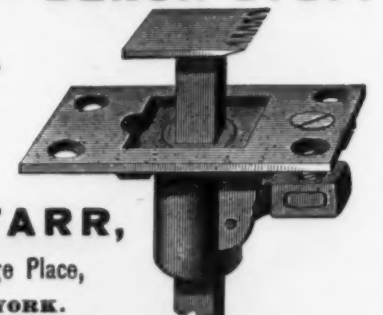
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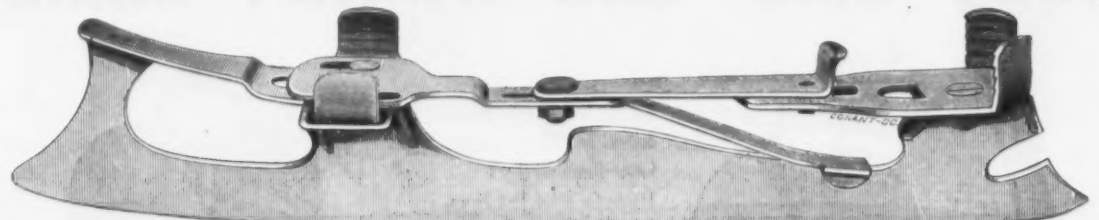
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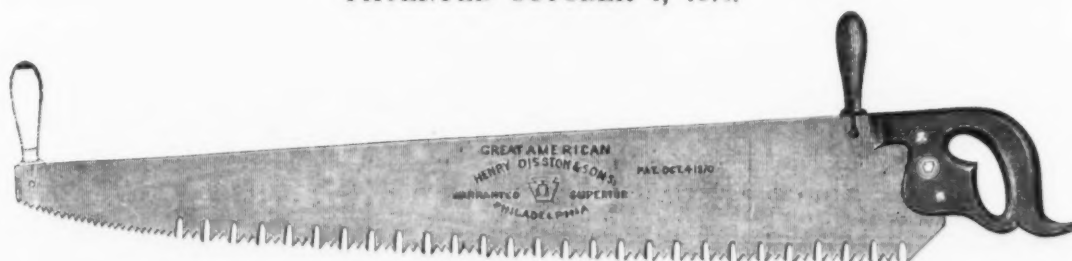
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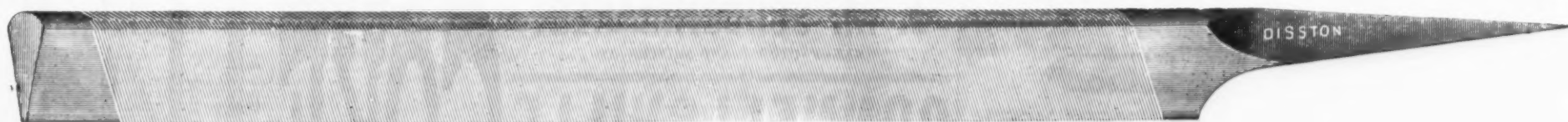
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Fig. 3 shows the section of the file in the gullet of the saw.

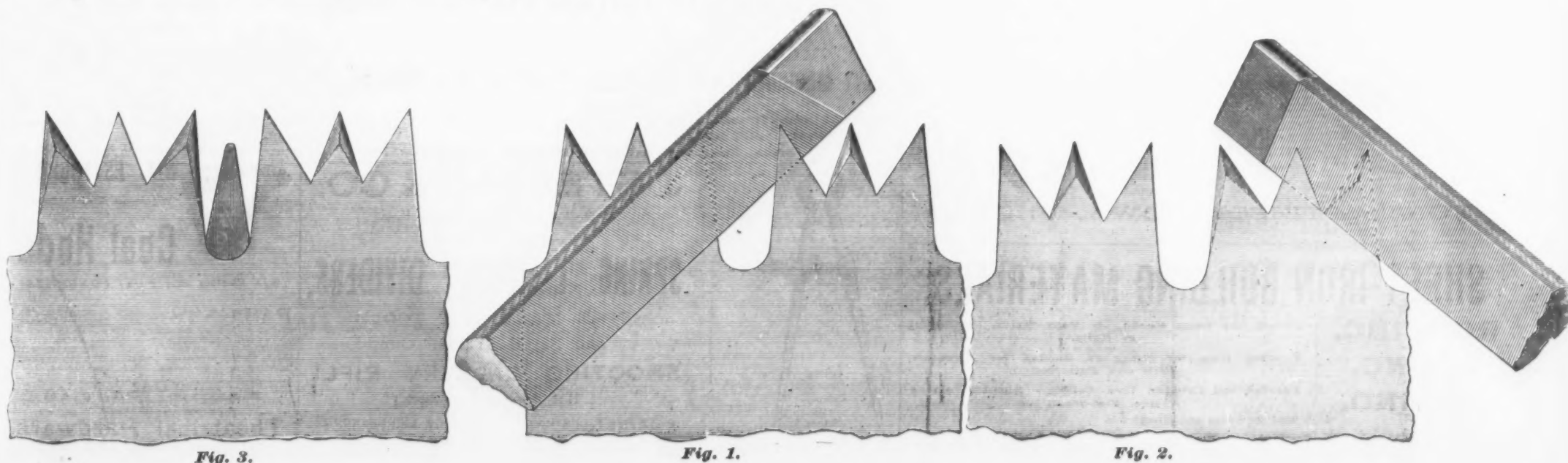


Fig. 3.

Fig. 1.

Fig. 2.

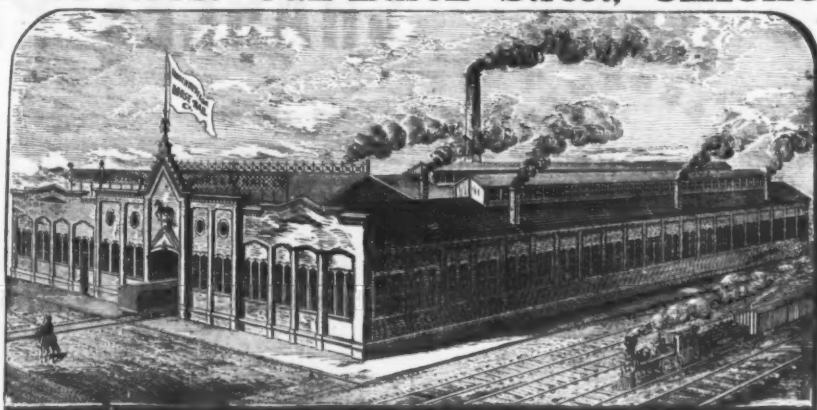
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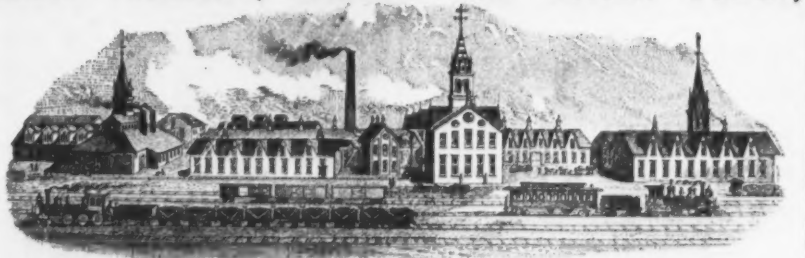
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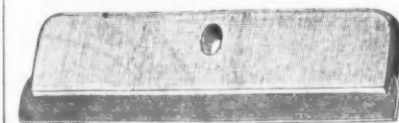


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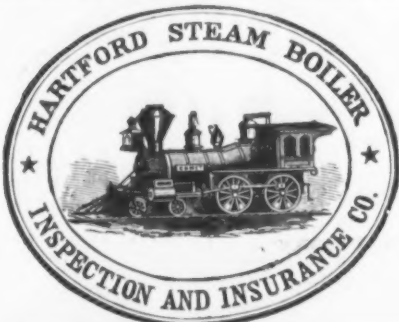
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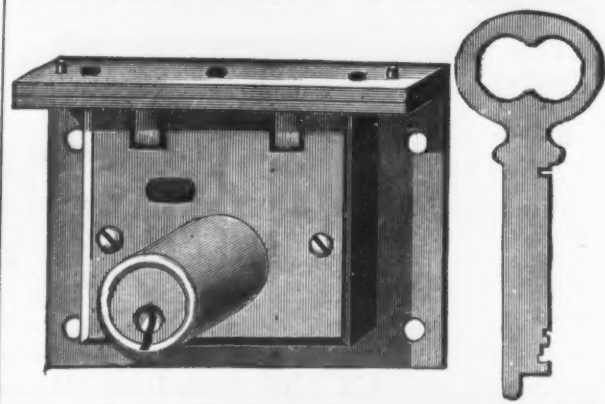
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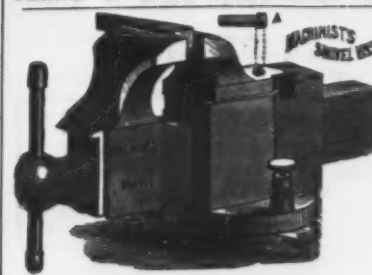
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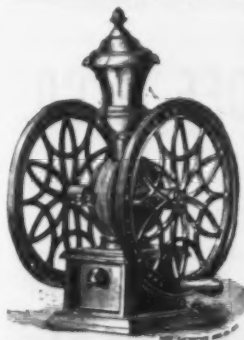
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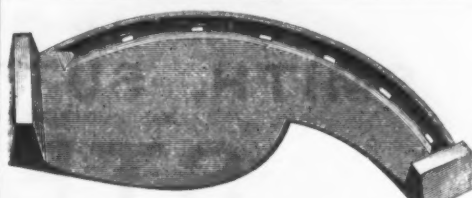
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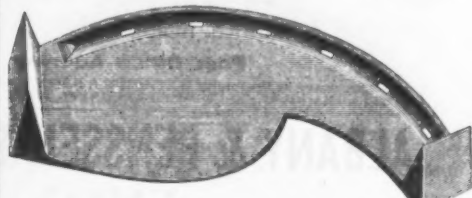
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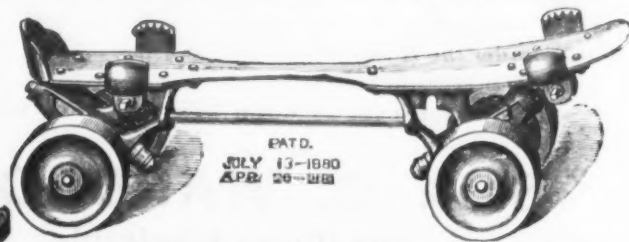
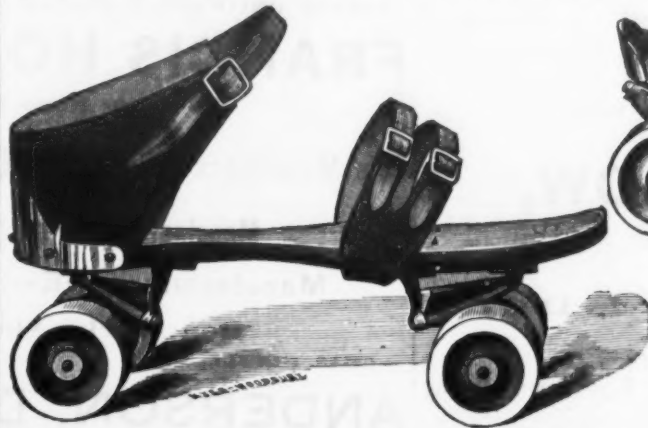
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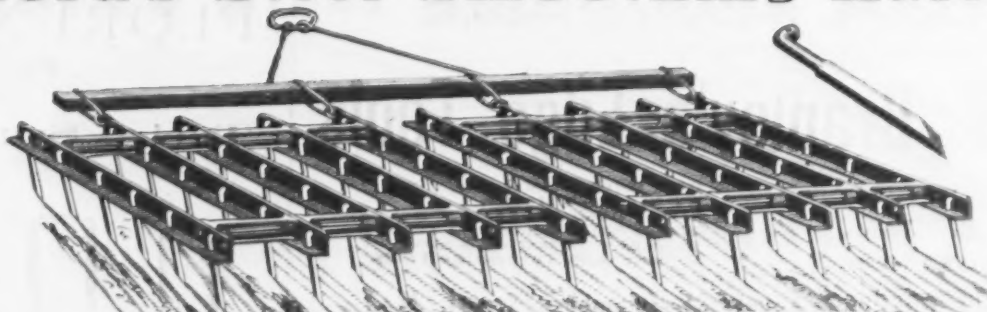
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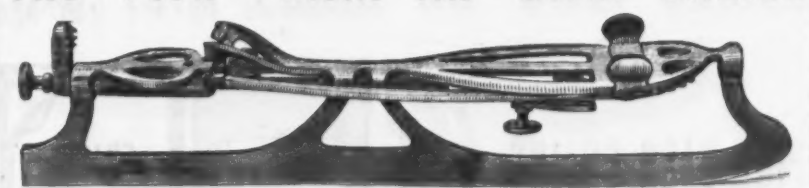
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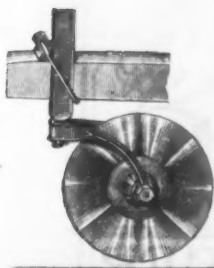
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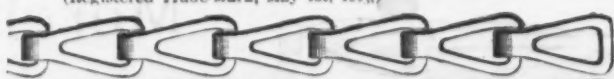
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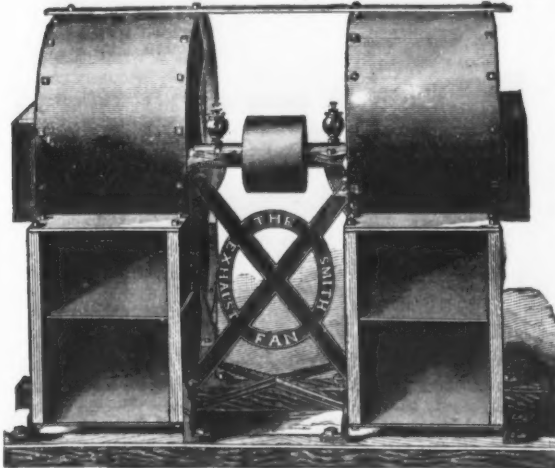
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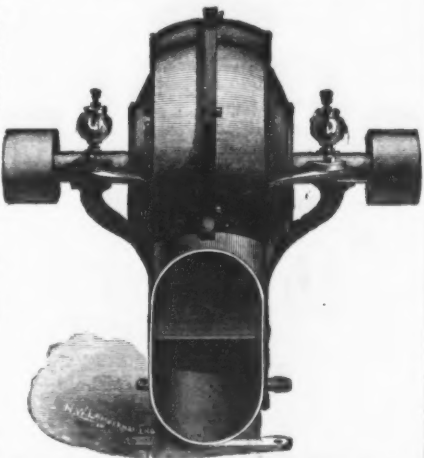
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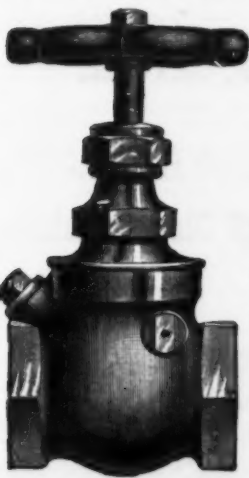
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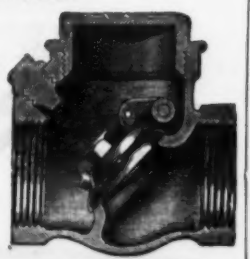
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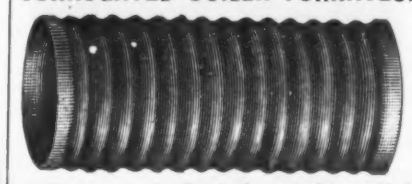
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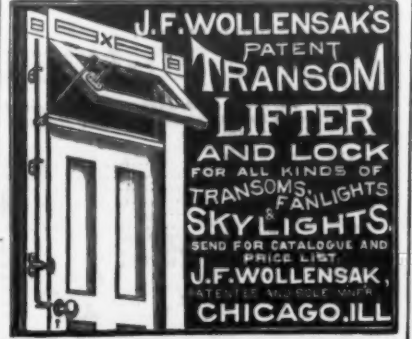
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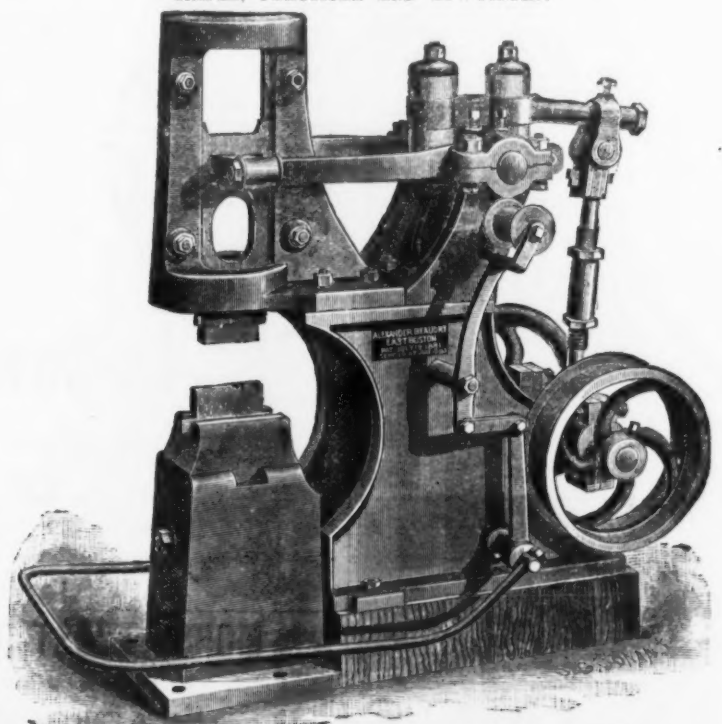
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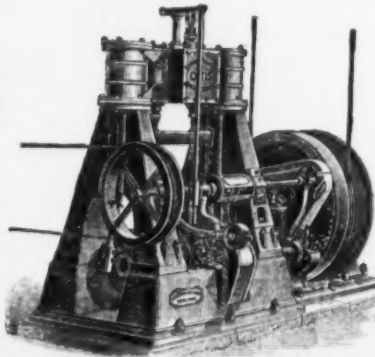
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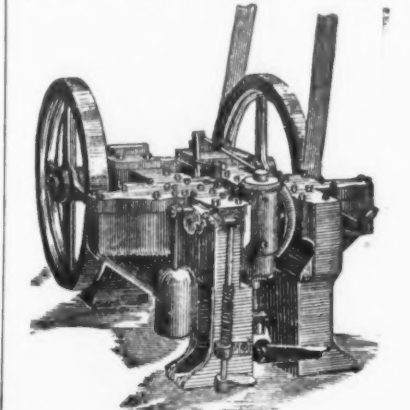
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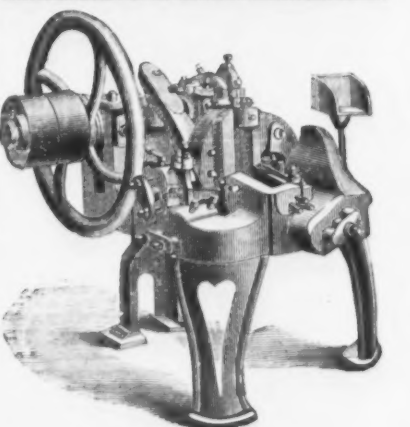
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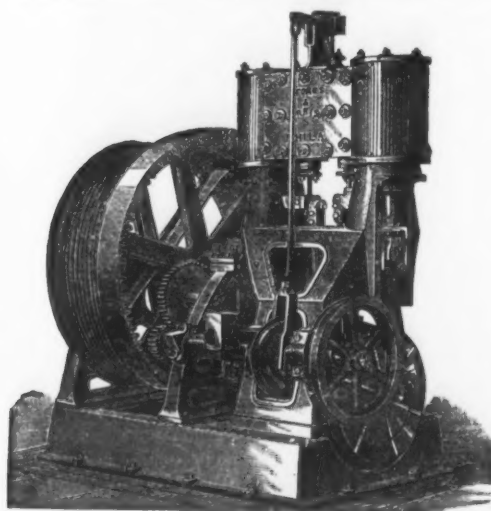
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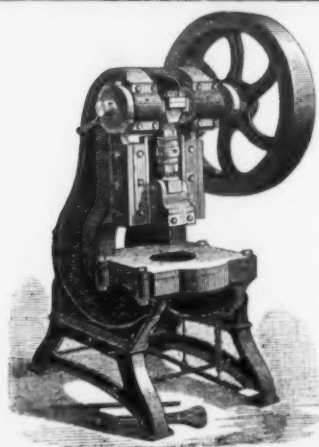
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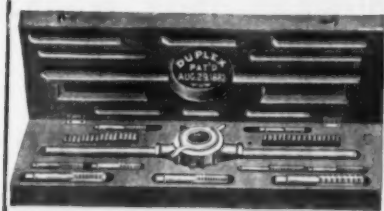
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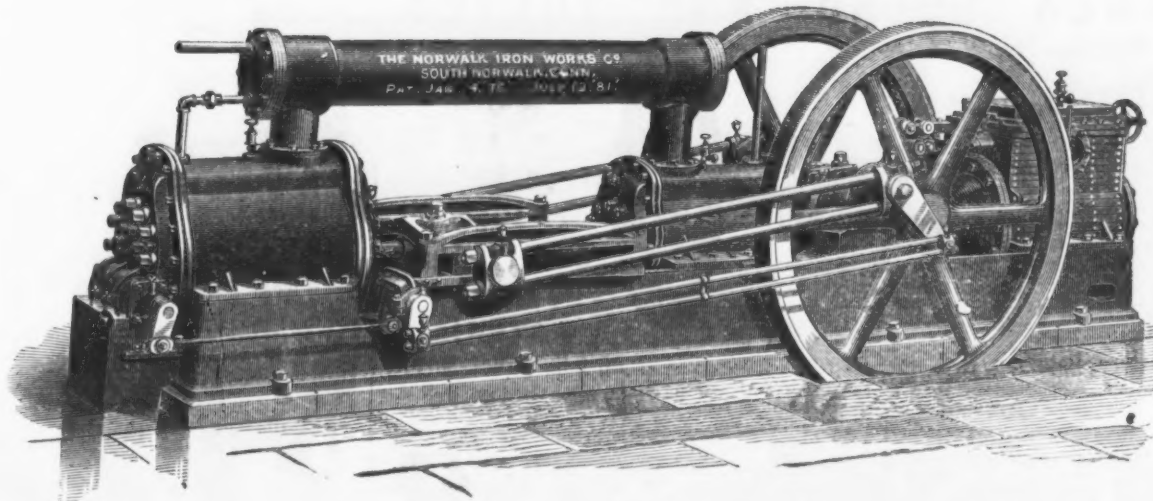
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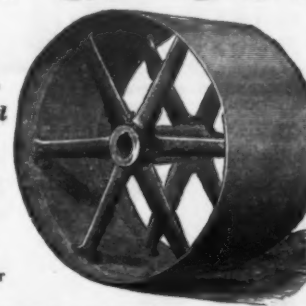
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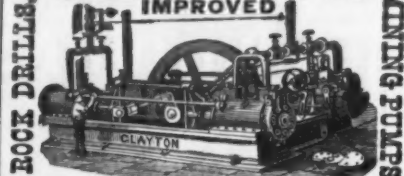
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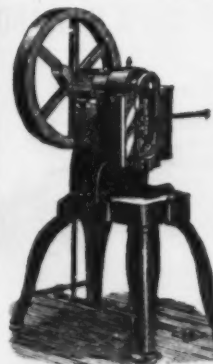
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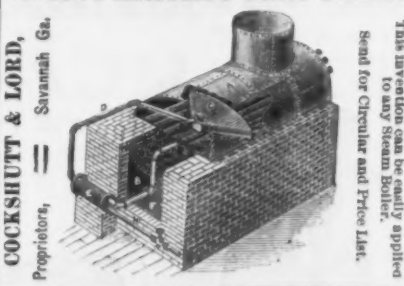
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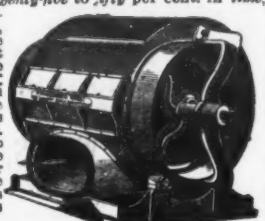
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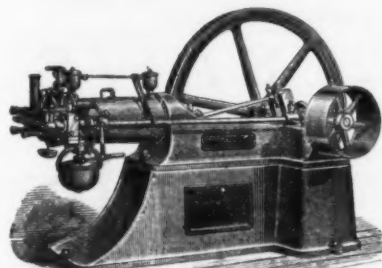
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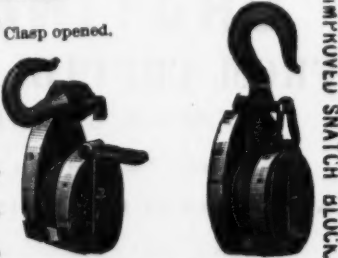
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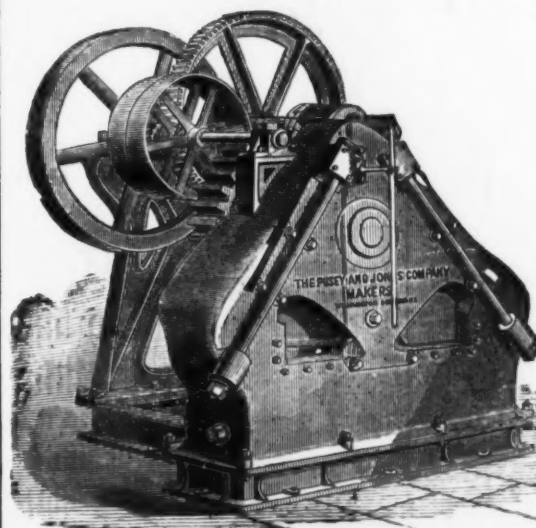
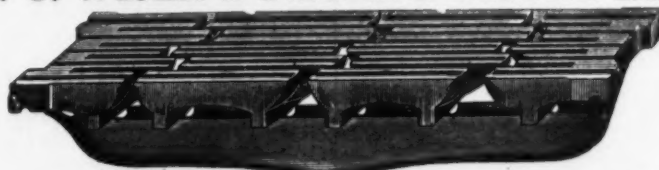
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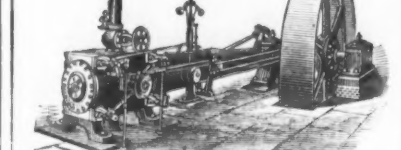
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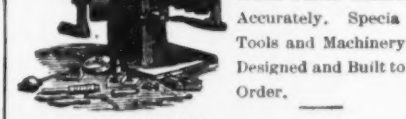
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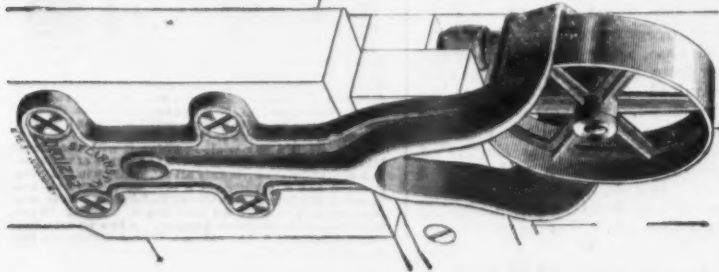
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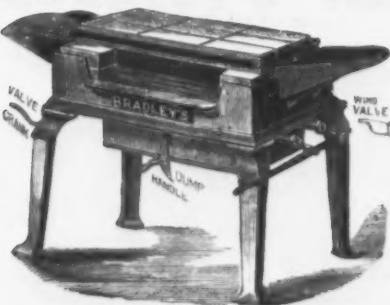
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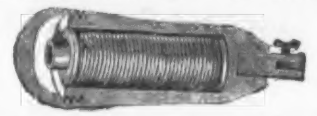
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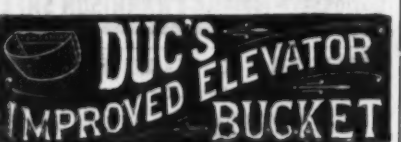
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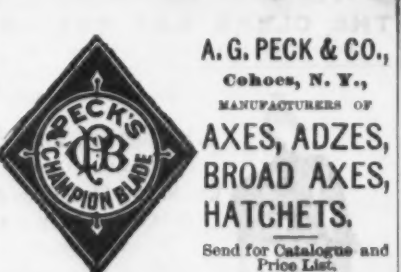
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